

STATE OF SOUTH CAROLINA
BEFORE THE PUBLIC SERVICE COMMISSION
DOCKET NO. 2019-262-E

In the Matter of:)	
)	REVISED COMMENTS OF SOUTH
)	CAROLINA STATE CONFERENCE
Application of Duke Energy)	OF THE NAACP, SOUTH CAROLINA
Progress, LL for Approval of)	COASTAL CONSERVATION
Rider DSM/EE-11, Decreasing)	LEAGUE, AND SOUTHERN
Residential Rates and Increasing)	ALLIANCE FOR CLEAN ENERGY
Non-Residential Rates		

The South Carolina State Conference of the NAACP (“SC NAACP”), South Carolina Coastal Conservation League (“CCL”), and Southern Alliance for Clean Energy (“SACE”) (collectively, “Efficiency Intervenors”) hereby submit the following Revised Comments on Duke Energy Progress, LLC’s (“DEP” or “the Company”) application for approval of its demand-side management (“DSM”) and energy efficiency (“EE”) rider for 2020 (“Rider 11”).¹ DEP seeks to recover, through its proposed Rider 11, certain costs, lost revenues, and incentives, including net lost revenues and program / portfolio performance incentives (“PPI”) as applicable, associated with its DSM and EE programs allocated jurisdictionally to South Carolina.

I. INTRODUCTION

Overall, Efficiency Intervenors support DEP’s application as DEP remains a regional leader in energy efficiency. However, DEP once again fell short of the energy savings target agreed to by the Company during the Duke Energy and Progress Energy

¹ The proposed Rider 11 consists of components calculated under DEP’s cost-recovery and incentive mechanism approved in Docket No. 2015-163-E.

merger (“Merger Settlement”).² In that agreement, DEP agreed to a target of one-percent savings of prior year retail sales and a cumulative target of 7% of retail sales from 2014 to 2018.³ Yet DEP failed to ever meet those targets and now forecasts a decline in savings for 2020. We encourage the Public Service Commission (“Commission”) to look at ways to encourage DEP to reach the one-percent annual savings target by expanding and improving its program offerings. DEP’s continued efforts to refine its portfolio of programs to achieve increased participation and sustain cost-effectiveness are encouraging, but more savings are needed and warranted.

The Company forecasts a decline to 0.72% savings of 2019 retail sales for 2020, which is concerning in light of DEP’s failure to reach its one-percent savings target.⁴ We believe the effort required to achieve and sustain savings levels in excess of one percent of prior year retail sales is in the public interest and should be a high priority for the Commission, DEP, and Collaborative stakeholders. Furthermore, we continue to have concerns with the Company’s overreliance on short-lived measures, particularly lighting and its residential behavioral program, My Home Energy Report (“MyHER”). Expansion of programs that deliver longer-term savings would balance the portfolio and protect against future risk from shifts in baselines and cost-effectiveness. We strongly urge the Commission, DEP, and Collaborative stakeholders to dedicate additional effort and invest more resources to increase energy and bill savings for those with the greatest

² The Merger Settlement with SACE, South Carolina Coastal Conservation League, and Environmental Defense Fund calls for annual energy savings of at least 1% of prior-year retail sales beginning in 2015 and cumulative savings of at least 7% over the period from 2014 through 2018. The Merger Settlement was approved by the Public Service Commission of South Carolina in Docket No. 2011-158-E.

³ *Id.*

⁴ DEP Response to SACE *et al.* Data Request 1-03.

need, DEP's low-income customers. We also encourage DEP to adopt Standard Annual Reporting Protocols that clearly indicate projected-to-actual performance comparisons and indicate top-line trends, such as savings as a percentage of annual sales and portfolio cost-effectiveness. Finally, we urge the Commission to be engaged with the work of the Duke Collaborative to ensure it remains an effective tool for supporting DEP's DSM/EE efforts.

Efficiency Intervenors' comments discuss the following topics:

- 1) Although DEP's portfolio remains very cost-effective, DEP savings consistently fail to achieve the agreed-upon annual savings target of one percent of prior year retail sales from the Merger Settlement.
- 2) DEP should increase its investments in its lower-income customers and communities and rely less heavily on behavioral and lighting programs.
- 3) The importance of Commission engagement with the work of the combined Duke Energy Progress and Carolinas Collaborative for North and South Carolina and its potential for supporting continuing improvement of DEP's DSM/EE efforts.

II. DUKE ENERGY PROGRESS' PERFORMANCE IN DELIVERING ENERGY-EFFICIENCY SAVINGS TO ITS CUSTOMERS

A. DEP Once Again Failed to Achieve its Target of One-Percent of Savings of Prior-Year Sales and Fell Short of Reaching the Seven-Percent Cumulative Target by 2018

Despite maintaining a cost-effective portfolio, DEP has consistently not met the annual savings targets agreed to in the Merger Settlement with SACE, CCL, and other intervenors.⁵ DEP's actual savings lagged significantly behind its annual one-percent

⁵ DEP Response to SACE *et al.* Data Request 1-04.

savings target in 2018 and its seven-percent cumulative savings target for the five-year period ending in 2018.⁶ In 2018, DEP delivered 339 gigawatt-hours (“GWh”) of efficiency savings at the meter, equal to 0.79% of the previous year’s retail sales.⁷ This reflects a 5.7% decline in incremental savings from the previous year, for which DEP reported annual savings of 0.83% of prior-year retail sales.⁸

The failure to reach the one-percent annual savings target is troubling in part because DEP is capable of achieving higher levels of energy efficiency savings in a cost-effective manner. As noted in CCL and SACE’s comments in the previous DEP DSM/EE proceeding, DEP’s most recent DSM potential study demonstrated the availability of cost-effective energy savings at a level higher than the agreed-to one-percent annual savings target.⁹

B. DEP’s Energy-Savings Projections

DEP exceeded its projected energy savings for 2018 by approximately 10%.¹⁰ While it is encouraging that the Company exceeded its projected energy savings, Efficiency Intervenors are concerned that DEP projected the savings level so far below the one-percent level it agreed to and is now projecting that it will not sustain current savings levels in the near future. Instead, DEP projects a decline in efficiency savings of more than 25 GWh in 2020, with a corresponding drop in the percent of annual sales

⁶ *Id.*

⁷ DEP Response to SACE *et al.* Data Request 1-03.

⁸ *Id.*

⁹ Nexant, Duke Energy South Carolina DSM Market Potential Study (Dec. 19, 2016) (“Nexant Study”).

¹⁰ *Compare Application of DEP for Approval of DSM/EE Rider 9*, Docket No. 2017-245-E, Application Ex. 7 (Aug. 1, 2017) (projecting approximately 324 million kWh savings for 2018) *with* Docket 2019-262-E, Application, Ex. 7 (Aug. 1, 2019) (reporting nearly 357 million kWh savings in 2018).

down to 0.72%.¹¹ This 7.1% drop in GWh savings would indicate a need for increased attention by DEP, the Commission, and the Collaborative to achieve additional savings from the Company's program offerings and expand those offerings with new programs, measures, and delivery strategies.

C. DEP should increase its investments in its lower-income customers and communities.

In the Collaborative, Efficiency Intervenors have observed DEP's commitment to increasing savings for low-income customers. Efficiency Intervenors applaud this effort and emphasize the importance of a continued focus on low-income customers. Low-income customers have the highest energy burdens (the highest percentage of income spent on residential energy bills), and consequently, are most in need of cost-saving energy efficiency programs. However, they are less likely to participate in programs marketed to the residential sector as a whole as those programs usually offer financial incentives to defray, but not totally eliminate, the incremental cost of efficiency measures. Low-income customers by definition rarely have the financial means to contribute to efficiency-measure costs. They are also more likely to be renters, and therefore face greater barriers to participation in efficiency programs than homeowners.

Robust EE programs for low- and fixed-income households are essential to ensure that all customers are able to afford basic utility service. According to a 2016 Home Energy Affordability Gap study, there are about 143,600 South Carolina households with an income less than 50% of the Federal Poverty Level ("FPL"). These households spend on average a staggering 25% of their income on energy bills—a far greater percentage than those households at 185 to 200% of the FPL, who spend an average of 5% of their

¹¹ DEP Response to SACE *et al.* Data Request 1-03.

income on energy.¹² About 172,500 additional South Carolina households live with incomes between 50% and 100% of the FPL and spend approximately 13% of their income on energy.¹³ Because of their limited means, low-income customers face difficult trade-offs between paying for essential utility service and affording other necessities of life, such as food and health care.

DEP's only program specifically marketed to low-income customers, the Neighborhood Energy Saver Program, is targeted to neighborhoods where at least half of the households have income levels at or below 200% of the Federal Poverty Guideline.¹⁴ While Efficiency Intervenors do not have data specific to just DEP's service territory, 32% of South Carolina households have incomes at that level.¹⁵ This program achieved 2.28 GWh of savings in 2018 – the lowest amount of savings of all of DEP's residential programs.¹⁶ For 2019, DEP only estimates devoting approximately 4.5% of its residential energy-efficiency spending on the program and 5.5% in 2020.¹⁷ When DEP's investment percentages into this program are compared to the percentages of South Carolinians living in poverty, it is clear there remains room for improvement. Efficiency Intervenors look forward to working with DEP in the Collaborative to address this gap in the coming year.

¹²Fischer, Sheehan and Colton, *2017 Home Energy Affordability Gap*, http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html

¹³ *Id.*

¹⁴ DEP Response to SACE *et al.* Data Request 1-12.

¹⁵ Kaiser Family Foundation, Distribution of the Total Population by Federal Poverty Level (above and below 200% FPL), <https://www.kff.org/other/state-indicator/population-up-to-200-fpl/>

¹⁶ DEP Response to SACE *et al.* Data Request 1-06.

¹⁷ *Application of DEP for Approval of DSM/EE Rider 10*, Docket No. 2018-255-E, Application Ex. 7 (Aug. 1, 2018); *Application of DEP for Approval of DSM/EE Rider 11*, Docket. No. 2019-262-E, Application Ex. 7 (Aug 1, 2019).

Although all DEP residential customers contribute to the DSM/EE rider and benefit from system-wide savings, low-income customers do not receive their share of direct benefits from program participation.¹⁸ There are substantial opportunities for DEP to provide additional energy savings assistance for this vulnerable customer class. Specifically, Efficiency Intervenors believe DEP and the Collaborative should prioritize the following: expanding budget allocations for programs targeted to low-income customers; refining and expanding existing program offerings; deployment of new programs; and increasing low-income customer impact through non-income qualified programs. DEP has shown a willingness to modify and expand its program offerings over the past year. For example, DEP's Neighborhood Energy Saver ("NES") program increased its energy savings over the past year and the company has discussed adding several new measures to the program, which we support.¹⁹ Nevertheless, Efficiency Intervenors encourage Duke to continue working with the Collaborative to adopt new programs aimed at meeting the unique needs of low-income customers. While DEP's Neighborhood Energy Saver can reach a relatively large number of customers, it produces comparatively shallow energy and bill savings per participating residence.²⁰ Programs that deliver deeper savings to those with the highest energy burdens are still

¹⁸ Low income customers, like all customers, can still benefit from the effects all of DEP's programs have on reducing utility system costs. But they cannot receive their proportionate share of direct benefit from program participation if they cannot participate at levels commensurate with those of non-low income customers. Duke presented its tracking data of low-income impact across its portfolio of residential programs at the January 2019 Collaborative meeting. Efficiency Intervenors support this data tracking and hope that Duke and the Collaborative will continue analyzing the impact of Duke's entire portfolio of efficiency programs on low-income customers.

¹⁹ DEP Response to SACE *et al* Data Request 1-06.

²⁰ Duke Energy Progress South Carolina, Neighborhood Energy Saver, <https://www.duke-energy.com/home/products/income-qualified/neighborhood-energy-saver>.

needed. It is worth noting that Duke Energy Carolinas has a successful model for delivering such deeper savings to low-income households in North Carolina, its Income-Qualified Weatherization Program.²¹ Unfortunately, DEC has not yet been able to achieve similar success with that program in South Carolina.²² Nevertheless, there are numerous other program options that DEP could explore, including programs for manufactured homes, multifamily housing, and tariffed on-bill financing.

DEP has acknowledged that cost-effectiveness remains a barrier to expanding low-income programs. Low-income energy efficiency programs have significant non-energy benefits (“NEBs”), which are often unaccounted for under DEP’s current cost-effectiveness testing. These benefits include fewer disconnections and arrearages on utility bills;²³ improved health, safety and comfort; increased productivity; environmental benefits; economic development; and job creation. It is essential to recognize NEBs in screening programs for cost-effectiveness, particularly for low-income programs. In order to value all energy savings appropriately, Efficiency Intervenors recommend that moving forward, DEP work with the Collaborative to develop values for the NEBs associated with low-income programs and to evaluate new programs with this more robust evaluation framework. Efficiency Intervenors believe the Helping Home Fund

²¹ Evans Ex. F, Opinion Dynamics, *DEC 2015 Low Income Weatherization Program Evaluation Report* (June 13, 2018), *In the Matter of: Application of Duke Energy Carolinas, LLC for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider*, N.C.U.C. Docket E-7, Sub 1192 (Feb. 26, 2019)

²² *Id.* at p. 12 (noting that in “South Carolina, agencies have struggled to participate in the DEC Weatherization Program” because to do so would risk loss of other key government funding for participating weatherization agencies).

²³ DEP, Quarterly Reports on Involuntary Termination of Electric and/or Gas Service, Reports for the First, Second, and Third Quarters of 2019, Docket No. 2006-193-EG (noting over 16,900 accounts in its South Carolina service territory were disconnected for non-payment between January and September of this year).

from DEP's North Carolina territory could serve as a model program that recognizes the value of NEBs.²⁴

Efficiency Intervenors remain committed to supporting DEP in its continued efforts to better meet the needs of its low-income customers and will continue to work through the Collaborative in the above areas.

D. Overreliance on Short-lived Measures in Residential Behavioral Programs

My Home Energy Reports ("MyHER") and lighting measures have dominated DEP's residential portfolio in recent years.²⁵ Behavioral programs, like MyHER, provide no significant long-term or deep savings, while standard residential lighting measures are now under pressure due to increasing federal standards. Efficiency Intervenors recommend that DEP work with the Collaborative to develop a pathway for focusing on deeper and longer-lived measures to maintain a more balanced and robust program going forward.²⁶ Among the myriad benefits of capturing deeper savings is the potential to make up savings declines from lighting as federal standards go into effect.

III. ACTIVITY AT THE DUKE COLLABORATIVE AND ITS ROLE IN SUPPORTING CONTINUED SUCCESS OF DEP'S DSM/EE EFFORTS

The Collaborative is comprised of a broad spectrum of regional stakeholders from North and South Carolina and encompasses DSM/EE programs from both Duke Energy Progress and Carolinas. The Collaborative includes balanced interests from nonprofit advocates, business representatives, and consumer advocates—including participation

²⁴ **Attachment A**, Advanced Energy, *Evaluation of Duke Energy's Helping Home Fund* (Oct. 15, 2017).

²⁵ *Application of DEP for Approval of DSM/EE Rider 10*, Docket No. 2018-255-E, Application Ex. 7 (Aug. 1, 2018).

²⁶ *Id.*

from the Office of Regulatory Staff and the North Carolina Public Staff—as well as national energy-efficiency experts. Last year, SACE and CCL raised a number of concerns about the Collaborative in filed comments.²⁷ Since that time, SACE, CCL, and other public interest advocacy groups have worked with Duke to implement a number of positive changes at the Collaborative. In the companion DEP DSM/EE rider docket in North Carolina, Efficiency Intervenor SACE, along with other allied parties, submitted the testimony of Forest Bradley-Wright, Efficiency Director of SACE. Efficiency Intervenors incorporate Mr. Bradley-Wright’s recommendations regarding the Collaborative in this Docket.²⁸ Since last year, Duke has worked with stakeholders in the Collaborative to make tangible improvements, for example:

- More frequent in-person meetings to achieve greater momentum on Collaborative priorities;
- Shared agenda setting to identify pertinent topics, achieve greater stakeholder buy-in, and increase discussion among participants;
- Higher levels of stakeholder involvement;
- A shift in focus away from formulaic reporting by the Company towards a greater emphasis on problem-solving opportunities and the development of program enhancement recommendations;
- Group decision-making to set the Collaborative’s annual work priorities;

²⁷ See *Comments of CCL and SACE, Application of Duke Energy Progress, LLC for Approval of Rider 10, Demand-Side Management and Energy Efficiency*, Docket No. 2018-255-E (Oct. 15, 2018).

²⁸ Direct Testimony of Forest Bradley-Wright on behalf of SACE, North Carolina Justice Center, and North Carolina Housing Coalition, *In the Matter of: Application of Duke Energy Progress, LLC for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider*, N.C.U.C. Docket E-2, Sub 1206, Transcript of Hearing Held Sept. 9, 2019 (Sept. 27, 2019).

- More communication and project work occurring between regular Collaborative meetings;
- More research and project work conducted by DEP and Collaborative parties between Collaborative meetings;
- New expectations around tangible project deliverables; and
- Active focus on two specific priorities selected by the group: 1) addressing portfolio-level opportunities and challenges to reach and exceed the 1% annual savings target; 2) and increasing energy and bill savings for low-income customers.²⁹

There has been strong stakeholder participation in the Collaborative and Duke Energy has continued to involve a broad range of their staff, including program management staff, in the meetings. With Duke's continued willingness to accommodate the changes above, and the stakeholders' commitment of more time and resources to the Collaborative, Efficiency Intervenors anticipate better outcomes with the Collaborative over the next year.³⁰

While there have been great strides in improving the work of the Collaborative, there have been some challenges that require continued attention. Prior to September 2018, the Collaborative's efforts to develop new program ideas, modify existing programs, or otherwise impact the overall efficiency savings of Duke's efficiency programs were not as strong as they could be.³¹ The Collaborative has dedicated time, energy, and resources to developing programs that either are not implemented by Duke or

²⁹ Testimony of Mr. Bradley-Wright, N.C.U.C. Docket E-2, Sub 1206, Transcript of Hearing Held Sept. 9, 2019, Tr. pp. 142-143 (hereinafter "Tr.").

³⁰ Tr. p. 144.

³¹ Tr. p. 139.

acted on by the Commission.³² To overcome this challenge, Efficiency Intervenors believe it is important to learn from jurisdictions that have experienced greater success from similar stakeholder processes and consider factors that could improve the Collaborative, which are discussed in further detail below.³³

E. Enhancing the Value of the Collaborative

Efficiency Intervenors continue to believe that the Collaborative is useful because detailed efficiency program implementation issues are best addressed through joint problem solving and collaboration, rather than contested proceedings before the Commission. Moreover, many efficiency issues do not fit effectively into existing formal docketed proceedings.³⁴ Mr. Bradley-Wright recommends continuing to use the Collaborative for these types of issues, monitoring whether better results have been achieved at the end of the year and, if not, determining whether additional operational changes or Commission direction is warranted.³⁵

One example of an efficiency issue that does not fit squarely into existing formal docketed proceedings is refining cost-effectiveness testing. DEP noted that cost-effectiveness remains a barrier to achieving greater savings.³⁶ DEP acknowledges that under the Total Resource Cost (“TRC”) test, there are NEBs that are not currently reflected – causing programs to appear less cost-effective than they actually are.³⁷ Efficiency Intervenors believe that the Collaborative presents a valuable resource for quantifying NEBs and urge the Commission to direct the Collaborative to undertake that

³² Tr. p. 140.

³³ Tr. p. 154.

³⁴ Tr. p. 141.

³⁵ *Id.*

³⁶ Tr. p. 84.

³⁷ Tr. p. 88.

effort.³⁸ In the meantime, Efficiency Intervenors believe the Commission should adopt the Utility Cost Test (“UCT”) as the primary test for cost effectiveness, as it more accurately reflects the full costs and benefits of energy efficiency programs than the TRC as it is presently calculated.³⁹

Additionally, Mr. Bradley-Wright stressed that one of the principal challenges to effectiveness at the Collaborative today is the need for more timely provision of pertinent information about potential program modifications. The Collaborative also needs sufficient time and space for group discussion to work through issues and develop practical recommendations in time to materially impact the decision-making process for Duke.⁴⁰ Mr. Bradley-Wright provided recent examples where Duke brought forward ideas for program modifications or additions to the Collaborative with insufficient time to solicit or incorporate input from the Collaborative before the issue was brought before the Commission.⁴¹ Efficiency Intervenors believe that improvements in how Duke engages with the Collaborative during the development of new programs and modification of existing programs is extremely important for fulfillment of the purpose the Commission directed stakeholder engagement.⁴²

1. Continue to Make Improvements to the Collaborative

Mr. Bradley-Wright provided examples of several practices from other jurisdictions that could help the Collaborative function more productively, including:

³⁸ Tr. p. 141.

³⁹ Tr. p. 133.

⁴⁰ Tr. p. 145.

⁴¹ Tr. pp. 146-147.

⁴² *Id.*

- **Structural approach guided by the Commission:** A more structured approach with direction by the Commission could lead to more tangible outcomes. For example, the Arkansas Public Service Commission has a significant role in setting the agenda for its stakeholder group, and sets deliverables and deadlines that the collaborative group is required to meet.⁴³ By comparison, the North Carolina Utilities Commission has referred issues raised in testimony to the Collaborative, without established deliverables, timelines or requirements beyond DEP submitting testimony stating that the topics have been discussed.⁴⁴ In Arkansas, issues referred to their stakeholder group are also typically brought back to the Commission for specific decision-making.
- **Independent facilitator:** An independent facilitator could help with consensus-building among parties and enable Collaborative participants to focus on the topic at hand rather than the actual running of meetings. Collaborative parties in other jurisdictions, like Arkansas, select an independent facilitator that works to increase confidence in the process among participants and assists in making the meetings run more effectively.⁴⁵
- **Observe the work of the Collaborative:** Efficiency Intervenors request that the Commission closely monitor the work of the Collaborative this year and assess whether significant additional progress has been made,

⁴³ Tr. p. 154.

⁴⁴ Tr. p. 155.

⁴⁵ *Id.*

particularly with regard to tangible results from the Collaborative's work.⁴⁶ The current specific action items of the Collaborative involve:

- *Portfolio-level assessment of opportunities and challenges to maintain and exceed 1% annual energy savings*
- *Expansion of efficiency savings impact for low-income customers*
- *Modification and additions to DEP efficiency programs reflecting direct input from the work of the Collaborative*

Efficiency Intervenors respectfully request that in 2020, the Commission seek comment from Collaborative participants on whether the Collaborative has sufficiently corrected its course, or whether additional changes are needed that would warrant Commission action.⁴⁷

2. *Establish DSM/EE Recovery Rider Annual Reporting Protocol*

Efficiency Intervenors recommend the establishment of a standard annual reporting protocol for Duke's DSM/EE Recovery Rider filings to clearly present top-level data on portfolio- and program-level impact metrics and performance trends for the benefit of the Commission and the public. While the majority of information needed for such reporting is already prepared by Duke to support its annual filings, much of the information can only be acquired through data requests, which means only parties to the proceedings can have access to them.⁴⁸ In past years, Efficiency Intervenors SACE and CCL provided similar top-level data to show trends in the overall effectiveness and

⁴⁶ Tr. p. 155.

⁴⁷ Tr. p. 156.

⁴⁸ Tr. p. 158.

savings achieved by DEP's programs in its comments in these DSM/EE rider dockets.⁴⁹

It would be more effective for DEP to provide such high-level data in a dashboard format that would be easily accessible by the Commission and the public.

Currently, the DEP DSM/EE Recovery Rider Application is not organized in a way that is convenient for review and analysis, nor is it presented in a way that would allow the Commission or the public to efficiently identify topline trends.⁵⁰ For example, the Merger Settlement set annual and cumulative savings targets, but DEP does not report on progress towards meeting those targets in its Application filings.⁵¹ DEP should develop a standard annual reporting protocol similar to the one used in Arkansas.⁵² The reports provide a narrative of Entergy Arkansas' annual efficiency performance filing and the Excel workbook make topline analysis available in an easy to use format. The report includes:

- Planned Versus Actuals – side-by-side comparisons of projected and actual program budgets, demand savings, and energy savings;
- Budget breakdowns – indicating expenditures on incentives/direct install costs compared to marketing, administration, and EM&V costs;
- Cost/Benefit – TRC and Program Administrator Costs test results (also known as the Utility Cost Test), and TRC Net Present Value;
- Levelized cost of energy saved;

⁴⁹ See, e.g., *Comments of SACE et al. on DEP's Application for DSM/EE Rider 9*, Docket No. 2017-245-E (Oct. 16, 2017) (comparing composition of residential savings over time, noting increasing non-residential opt outs, and examining cost-effectiveness of DEP programs over time).

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² **Attachment B**, Arkansas Public Service Commission Standardized Annual Reporting Workbook.

- Annual percentage of savings compared to baseline year; and
- Historic comparisons on budgets and energy savings.

DEP could also consider incorporating the tools developed by the Lawrence Berkley National Laboratory, which has developed a set of standard annual reporting tools that can be used by individual jurisdictions.⁵³ On September 26, 2019, Duke convened a call with members of the Collaborative on the subject of data reporting. During the call, Duke indicated receptiveness to implementing standard annual reporting improvements, and expressed a willingness to work on the details with interested members of the Collaborative. Efficiency Intervenors appreciate Duke's initiative and want to work with them on reporting for the 2019 DSM/EE program year. Efficiency Intervenors likewise recommend that the Commission order DEP to adopt a streamlined reporting tool that can be used to track the Company's performance, or, in the alternative, to follow-through with its work with the Collaborative to develop a standard reporting tool that would allow for easier tracking of the Company's performance – as the NCUC ordered in the most recent DEC DSM/EE proceeding, and as this Commission recommended in the most recent DEC DSM/EE proceeding.⁵⁴

⁵³ Alex Hofman, *et al.*, *Energy Efficiency Reporting Tool for Public Power Utilities*, Lawrence Berkeley National Lab, (March 2016), <https://emp.lbl.gov/publications/energy-efficiency-reporting-tool>; *see also* Tr. p. 157.

⁵⁴ *Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice*, N.C.U.C. Docket No. E-7, Sub 1192 at 35 (October 18, 2019) (concluding that the Collaborative should explore the development of a standard annual reporting protocol); *see also* commentary of Commissioner Florence Belser re *Application of Duke Energy Carolinas, LLC for Approval of Rider 11, Demand0Side Management and Energy Efficiency for 2020*, June 29, 2019 S.C. Public Service Commission Business Meeting at 22:15 – 26:03 (“One of the other things that I found interesting in the SACE and CCL comments is the suggestion that development of some sort of annual standardized reporting protocols to try to bring transparency to the DSM EE efforts and the recovery

CONCLUSION

In conclusion, Efficiency Intervenors generally support DEP's request for approval of Rider 11. Although DEP's portfolio remains very cost-effective, Efficiency Intervenors are nonetheless concerned that DEP savings consistently fail to achieve the agreed-upon annual savings target of 1.0% from the Merger Settlement.

Efficiency Intervenors recommend the following steps to help DEP increase its energy savings from DSM/EE programs and to work more effectively with stakeholders through the Collaborative:

- 1) The Commission should direct the Company to further engage with the Collaborative during the development of new programs and modification of existing programs in a timely, structured manner that permits the stakeholders to provide meaningful recommendations;
- 2) The Commission should direct the Company to continue collaborative working group discussions about low-income, multifamily, and manufactured housing with the goal of increasing program budgets and offerings that reach low-income customers;
- 3) With regard to the portfolio-level assessment of opportunities and challenges mentioned above, the Commission should order the Collaborative to address the projected decline in annual savings from DEP forecasts for 2020, and develop a plan to maintain and grow savings levels to reach and exceed savings of one percent of prior year retail sales; and

rider. I join and encourage the Company to work within the Collaborative and with these other parties to see if they can reach some common ground on some of these issues.”).

- 4) The Commission should closely monitor the work of the Collaborative over the next year, invite input from stakeholders who participate in the Collaborative to report back to the Commission in 2020 on progress, and approve development of a standard annual reporting protocol for Duke's DSM/EE Recovery Rider filings along the lines of the reporting used in Arkansas.

Respectfully submitted this 15th day of November, 2019

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Attachment A



EVALUATION OF DUKE ENERGY'S HELPING HOME FUND

October 15, 2017



EXECUTIVE SUMMARY

Between 2015 and 2017, Duke Energy worked with the North Carolina Community Action Association (NCCAA) and Lockheed Martin to administer the Helping Home Fund, a program helping low-income customers improve their health and safety and manage their energy costs.

Duke Energy was the funding sponsor, with Duke Energy Carolinas and Duke Energy Progress providing a total of \$20 million to support appliance replacement, health and safety measures, weatherization, and heating/cooling replacement and repair in participating homes. NCCAA was chosen as the program administrator and contracted with Lockheed Martin to assist with implementation.

In all, the Helping Home Fund reached 3,516 homes with an average of \$5,151 in performed work per home. The Helping Home Fund was designed to leverage additional funding as well, including the State Weatherization Assistance Program (NCWAP), which consists of U.S. Department of Energy (DOE) Weatherization Assistance Program (WAP) and Low Income Home Energy Assistance Program (LIHEAP) funds, the PNC Home Beautification Fund, and funds from the North Carolina Housing Finance Agency (NCHFA). Without the Helping Home Fund, more than 40 percent of the participating homes would have been deferred due to funding limitations and program guidelines in the NCWAP. During the time period that the Helping Home Fund was operating, the program spent \$20 million. Leveraged funding included:

- **NCWAP: \$17 million**
- **PNC Home Beautification: \$250,000**
- **NCHFA: \$234,000**

Funds were also leveraged from other private funding sources, such as the City of Raleigh and City of Charlotte Urgent Repair Programs, but we were unable to obtain data on their funding levels.

Duke Energy had an interest in understanding the full impact of the program, including leveraging opportunities, and economic and non-energy impacts, such as health, safety and comfort. A number of approaches were taken for this effort. First, the team developed two surveys that were distributed to participating homeowners and service providers. The surveys gauged views of the Helping Home Fund and how people thought the program impacted the lives of families and the larger community. Second, a review of prior research evaluated the monetized values of potential energy and non-energy benefits associated with the program.

Results from the surveys demonstrated that both homeowners and service providers had a very favorable view of the Helping Home Fund. Homeowners noted that they felt safer, more comfortable and healthier in their homes, and reported financial savings that would allow them to pay for other necessities. Service providers applauded the program for its flexibility, staff and communication. Furthermore, the literature review of other low-income weatherization programs revealed that homeowners experienced a variety of non-energy benefits. Conservative estimates in the literature found monetized values for these benefits to be between \$4,500 and \$10,000 per home.

With the success of the program and the merger between Duke Energy and Piedmont Natural Gas, an additional \$2.5 million will be used for a similar program to provide assistance to even more income-qualified families in North Carolina.

The Helping Home Fund reached 3,516 homes with an average of \$5,151 in performed work per home.



INTRODUCTION

As a result of the Duke Energy North Carolina rate cases in 2013, Duke Energy allocated \$20 million (\$10 million from Duke Energy Carolinas [DEC] and \$10 million from Duke Energy Progress [DEP]) to assist low-income customers. For both utilities, the \$10 million was allocated in the following ways: \$3 million was used for health and safety measures and appliance replacement (for DEP, some of these funds also went toward weatherization; DEC has a separate weatherization program), and \$7 million was used for heating/cooling system replacement and repair. The actual breakdown of the funds at the time of this report can be seen in **Table 1**.

This program, known as the Helping Home Fund, ran from January 2015 to May 2017. The goal of the funding was to assist low-income customers. Duke Energy saw an opportunity to provide assistance that did not currently exist by providing health and safety repairs, new energy-efficient appliances, and heating systems to help homeowners manage energy costs and increase their disposable income. To meet this goal, the Helping Home Fund worked primarily through weatherization service providers as well as other non-profit agencies that serve families at or below 200 percent of federal poverty guidelines. The program provided income-qualified customers with repairs and energy efficiency upgrades at no cost.

The Helping Home Fund was funded by Duke Energy and administered by the North Carolina Community Action Association (NCCAA). NCCAA partnered with Lockheed Martin, who provided the database for data tracking and reporting, and quality assurance (QA) and quality control (QC). The Helping Home Fund was designed to leverage the State Weatherization Assistance Program (NCWAP) and other public/private funding sources. The funds were allocated to local North Carolina weatherization service providers and several non-profit agencies who completed the projects and were reimbursed once the work was completed. The program was allowed to use 10 percent of the funding for administrative purposes, with 5 percent going to the administrator and 5 percent to the service providers.

The program provided income-qualified customers with repairs and energy efficiency upgrades at no cost.

The monies were transmitted in total to the NCCAA to manage and deposited at PNC Bank. As a result, PNC Bank suggested that the NCCAA apply for a grant from their foundation, which ultimately provided another \$250,000 for Helping Home Fund recipients for external beautification or maintenance, such as painting, roof repairs or landscaping.

TABLE 1 • HELPING HOME FUND BREAKDOWN

	DEC	DEP	TOTAL
APPLIANCE REPLACEMENT	\$950,343	\$620,399	\$1,570,742
HEALTH & SAFETY	\$1,765,387	\$873,998	\$2,639,385
HEATING/COOLING REPLACEMENT/REPAIR	\$6,395,779	\$6,388,239	\$12,784,018
WEATHERIZATION TIER 1		\$100,217	\$100,217
WEATHERIZATION TIER 2		\$1,018,932	\$1,018,932
PROJECT TOTAL	\$9,111,509	\$9,001,785	\$18,113,294
AVERAGE PER HOUSE			\$5,151
ADMINISTRATION	\$928,344	\$928,344	\$1,856,688
OVERALL TOTAL	\$10,039,853	\$9,930,129	\$19,969,982

INTRODUCTION

Because of federal regulations, the NCWAP has a limited amount of funding it can use per house for health, safety and energy measures. If repair monies were not available from either federal or local sources, the home would be deferred. The Helping Home Fund filled this gap, allowing the NCWAP to serve customers who would have otherwise been deferred by service providers by providing the funding to make the needed repairs. Furthermore, North Carolina weatherization agencies' energy efficiency improvements waitlist had been experiencing lengthy delays, and customers were not getting work scheduled or completed. The funding provided additional services to customers and helped to leverage federal and state funds for maximum customer benefit and impact.

The Helping Home Fund focused on four main components:

- 01 • Health and safety
- 02 • Appliance replacement
- 03 • Weatherization (in DEP territory only)
- 04 • Heating/cooling system replacement and repair

In DEC territory, homes already had access to weatherization through the existing energy efficiency Weatherization Program.

LM Captures is Lockheed Martin's tracking and reporting system that service providers used to enter the individual home data for the program. The database required comprehensive data input for customer, home and project details to determine eligibility and track program expenditures and measure level detail by project type. All program activities, including QA/QC and reimbursement request/fulfillment, were also reported.

Funds for health and safety were originally capped at \$800 per home, but due to customer needs learned throughout the program, the limit was later raised

to \$3,000. Health and safety measures included bath fans, vapor barriers, roof repairs, electrical/plumbing repairs, ingress/egress repairs, range repair and replacement, and water heater repair and replacement. Appliance replacement also started with an allotment of \$800 per home, but this amount was increased to \$2,000. This work included replacing inefficient appliances with ENERGY STAR® refrigerators, clothes washers, clothes dryers and room air conditioners.

Weatherization services were broken down into two tiers.

TIER 1

Tier 1 weatherization was for homes using < 7 kilowatt-hours (kWh) per square foot, < \$0.23 per square foot oil/liquid propane (LP) gas heat, or < \$0.38 per square foot oil/LP gas heat and water heating. Up to \$600 was allotted for the following measures:

- ✓ Heating system tune-up and cleaning
- ✓ Heating system repair
- ✓ Water heater wrap and pipe wrap for electric water heaters
- ✓ Cleaning or replacement of electric dryer vents
- ✓ ENERGY STAR-certified compact fluorescent lamps (CFLs)
- ✓ Low-flow showerheads and aerators
- ✓ Weatherstripping doors and windows
- ✓ Energy education

INTRODUCTION

TIER 2

Tier 2 weatherization was provided to homes using ≥ 7 kWh per square foot, $\geq \$0.23$ per square foot oil/LP gas heat, or $\geq \$0.38$ per square foot oil/LP gas heat and water heating. Here, up to \$4,000 was provided for the following:

-  Tier 1 services
-  Attic insulation
-  Air sealing
-  Duct sealing/repair
-  Wall insulation
-  Crawl space insulation
-  Floor insulation

Since heating/cooling systems account for the majority of an energy bill, 70 percent of the monies were allocated to improve customers' heating systems. The intent was to decrease customers' energy use, thereby providing them with more disposable income. Existing electric furnaces, electric baseboards, and oil or propane systems were replaced with high efficiency heat pumps (minimum 14 Seasonal Energy Efficiency Ratio [SEER] and 8.2 Heating Seasonal Performance Factor [HSPF]). In addition, many homes were found to have elderly residents with wood stoves, and new heating systems and ductwork were installed in these situations as well.

A maximum of \$10,000 could be used for heating/cooling system replacement and repair (\$6,000 max for heating/cooling and an additional \$4,000 to upgrade electrical and/or install new ductwork). Consistent with Tier 2 weatherization, heating/cooling system replacement and repair required energy usage per year to meet the following requirements:

- ≥ 7 kWh per square foot,
- $\geq \$0.23$ per square foot oil/LP gas heat, or
- $\geq \$0.38$ per square foot oil/LP gas heat and water heating.

High efficiency mini splits were allowed when a home did not have a centrally ducted system or the duct repairs exceeded an estimated threshold. Funds could also be used to upgrade the electrical system or repair/replace duct systems. All of the ductwork had to be insulated and sealed with mastic. Homes also had to have been weatherized as part of the installation of a new heating/cooling system, requiring proper sizing of the system.

STUDY DESCRIPTION AND METHOD

As the Helping Home Fund was nearing completion, Duke Energy had an interest in understanding the impacts of non-energy benefits among program participants and implementation service providers. Non-energy benefits can include a wide variety of improvements, such as those to economics, health, safety, quality of life and comfort. Studying and documenting these benefits helps determine the true cost-effectiveness of home energy programs and interventions.

In performing the analysis, the first step was to narrow down the array of potential non-energy benefits to specific ones to evaluate within the Helping Home Fund. The team selected health,

safety, comfort, improved disposable income, and economic sustainability/community impact.

To measure these impacts, two surveys were developed (see Appendix I). One survey went to participating homeowners, and a second survey was administered to the service providers that implemented the program measures and coordinated the work. To supplement the survey results and further characterize the outcomes of the Helping Home Fund, the team conducted a literature review to monetize the non-energy benefits. The results of this component of the program can be found later in the report.

NON-ENERGY BENEFITS

	HEALTH	Health included measures such as the number of doctor's visits, decreased asthma symptoms and other homeowner health effects.
	SAFETY	Safety included homeowners' accessibility or ability to move about their homes, as well as electrical and durability issues.
	COMFORT	Comfort addressed whether occupants felt that their homes were more comfortable.
	DISPOSABLE INCOME	Disposable income looked at whether the Helping Home Fund provided homeowners with additional income to spend on other necessities.
	ECONOMIC SUSTAINABILITY	Economic sustainability/community impact included effects on service provider employment and home deferrals, among others.

PROGRAM SUMMARY

The Helping Home Fund served 3,516 homes with an average of two projects each (e.g., appliance replacement, heating/cooling system replacement/repair, health and safety measures). Homeowner incomes had to be below 200 percent of federal poverty guidelines to participate. The homes were assessed by local service providers serving low-

income customers to determine what measures were most appropriate. The work was then completed by either service provider-based crews or subcontractors.

The homes were reported and tracked on a project level. Table 2 shows the average dollars spent per project category.

TABLE 2 • AVERAGE DOLLARS SPENT PER PROJECT

	APPLIANCES	HEALTH & SAFETY	HEATING/COOLING REPLACEMENT/ REPAIR	WEATHERIZATION TIER 1	WEATHERIZATION TIER 2	TOTAL
TOTAL SPENT	\$1,570,742	\$2,639,385	\$12,784,018	\$100,217	\$1,018,932	\$18,113,294
NUMBER OF PROJECTS	1,676	2,731	1,878	323	488	7,096
PROJECT TOTAL	\$937	\$966	\$6,807	\$310	\$2,088	\$2,553

Through the heating/cooling system replacements and repairs, more than 1,300 homes went from non-functioning to functioning heating systems (Table 3).

TABLE 3 • PRE-RETROFIT HEATING BREAKDOWN OF HOMES RECEIVING HEATING REPLACEMENT

EXISTING FUEL TYPE	NUMBER FUNCTIONING	NUMBER NON-FUNCTIONING	TOTAL
WOOD	7	26	33
ELECTRICITY	410	1,060	1,470
KEROSENE	9	9	18
NATURAL GAS	1	14	15
OIL/LP	107	222	329
NO HEAT	0	13	13
TOTAL	534	1,344	1,878

Note. All heating types converted to heat pumps with a SEER of 14 or greater.

The majority of homes (92 percent) were single-family detached and mobile homes. The remaining were multifamily units and townhomes or condominiums (Table 4).

TABLE 4 • BREAKDOWN OF HOMES SERVED BY THE HELPING HOME FUND

	SINGLE-FAMILY DETACHED	MOBILE HOME	MULTIFAMILY (5+ UNITS)	MULTIFAMILY (2-4 UNITS)	TOWNHOME/ CONDO	TOTAL
NUMBER OF HOMES	2,362	858	196	67	33	3,516

PROGRAM SUMMARY

The subset of customers that responded to the homeowner survey provided information regarding the number of children, elderly, and individuals with disabilities or respiratory illness (Table 5). With these varying degrees of vulnerability, it can be difficult for occupants to stay in their homes. The Helping Home Fund was able to provide services to populations that may not have otherwise been reached.

TABLE 5 • HELPING HOME FUND SURVEY RESPONSE

OCCUPANT CATEGORY	NUMBER OF OCCUPANTS
UNDER THE AGE OF 18	112
OVER THE AGE OF 60	275
IDENTIFY AS DISABLED	237
IDENTIFY AS HAVING A RESPIRATORY ILLNESS	171

Note. Included data from 317 survey respondents.

The Helping Home Fund spending on each participating home ranged from \$114.32 to \$19,825.31, with an average of \$5,151. Additional funding sources were used on these homes as well, including the NCWAP, PNC Home Beautification and the NCHFA (Table 6). NCWAP funds were used for heating/cooling systems and weatherization, while PNC Home Beautification focused on exterior improvement, such as landscaping, painting and roofing. NCHFA funds were used for heating/cooling systems, weatherization and structural repairs. Therefore, although a house received an average of \$5,151 through the Helping Home Fund, additional work may have been performed thanks to these other funding sources.

"We are no longer cold during the winter and hot in the summer."

TABLE 6 • HELPING HOME FUND LEVERAGED FUNDS (2015-2017)

SOURCE	AMOUNT LEVERAGED
NCWAP (INCLUDES DOE WAP AND LIHEAP)	\$17,321,491
PNC HOME BEAUTIFICATION	\$250,000
NCHFA	\$234,000

Note. Unable to obtain data for amount leveraged from other private funding.

To ensure that measures were installed correctly and funding was properly documented, randomly selected QC inspections were performed on completed jobs. At least 10 percent of homes with health and safety projects, appliance replacement or weatherization measures received QC, along with at least 25 percent of homes with heating/cooling system replacements and repairs.

QC inspectors conducted monitoring visits to evaluate effectiveness, safety, workmanship and compliance with program guidelines. They also addressed educational opportunities with local providers and customers during the on-site verification process. The process included a paper file review as well as an on-site visit with representation from a service provider. All measures installed with Duke Energy funds were verified to be present and compliant with work orders and materials invoiced. The quality of the workmanship was also evaluated, and QC inspection results were documented and discussed.

All QC documentation, on-site inspection details, reports and actions were uploaded into LM Captures. QC return visits were minimal, and all issues were addressed.

SURVEYS

The surveys sought to gauge the non-energy benefits and impacts of the Helping Home Fund. The full surveys, as well as responses from homeowners and service providers, can be found in Appendices I-III.

Homeowner Survey

The homeowner survey was designed to understand how the Helping Home Fund affected program occupants. Homeowners were randomly selected, and outbound calls were conducted by Duke Energy's call center for approximately one month. A total of 901 homeowners were contacted, with 317 completing the survey (a 35 percent completion rate).

The homeowners overall had a highly positive view of the Helping Home fund. Ninety-two percent of respondents reported feeling safer in their homes, and 81 percent said they have better home accessibility (e.g., getting into and out of the home).

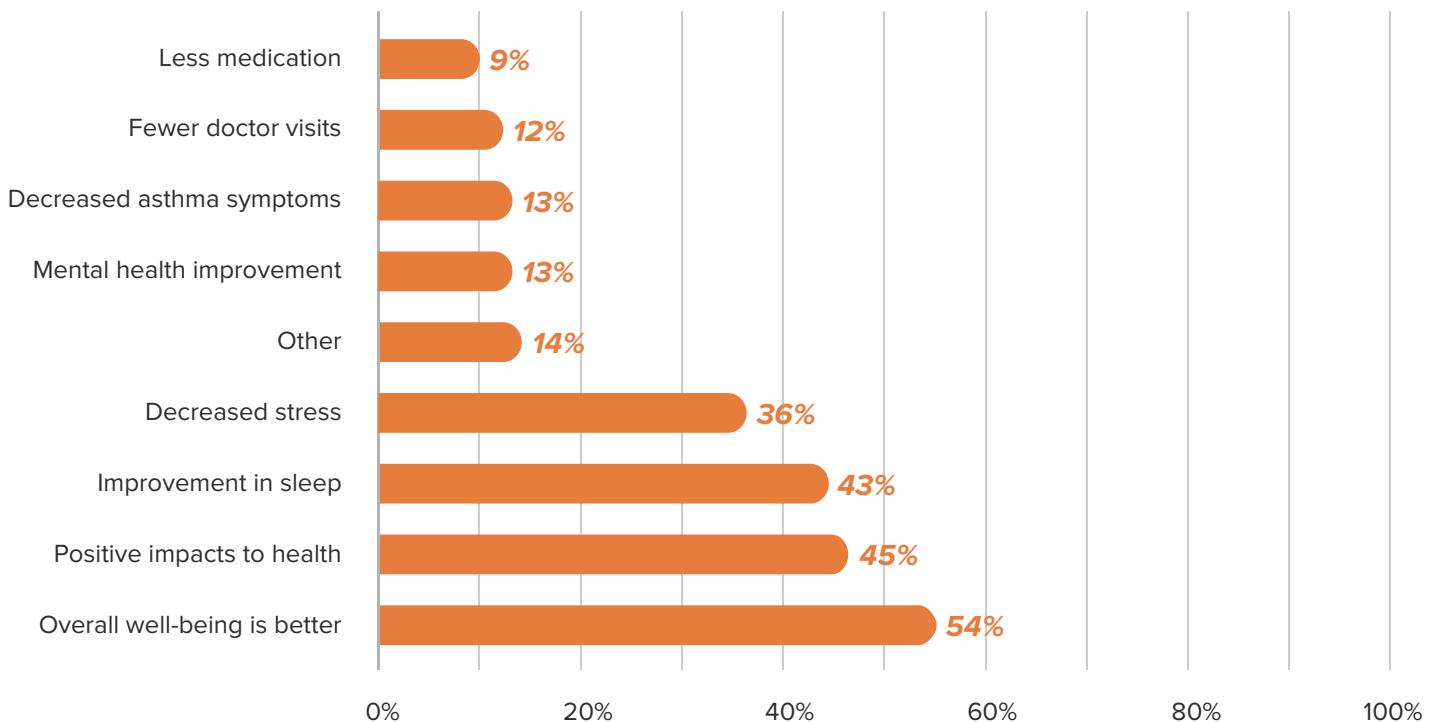
Additionally, 91 percent said the improvements from the Helping Home Fund made it possible for them to stay in their current location, and 96 percent responded that their lives have been made easier in some form. "They did a good job and it really helped me a long way," said one homeowner. "They put windows in my home so it feels warmer and I truly appreciate everything that you all did."

Forty-nine percent of respondents indicated that the Helping Home Fund upgrades definitely allowed them to have more money available to pay for other necessities, while an additional 29 percent said they somewhat did.

"My light bill has been a lot lower, so that helps me have extra money. My water bill has been lower too. It has been a lot better than in years past."

FIGURE 1 • HOMEOWNER SURVEY RESPONSES

Survey question: Have you (or any family members) noticed any positive health impacts due to the upgrades to your home? Check all that apply.



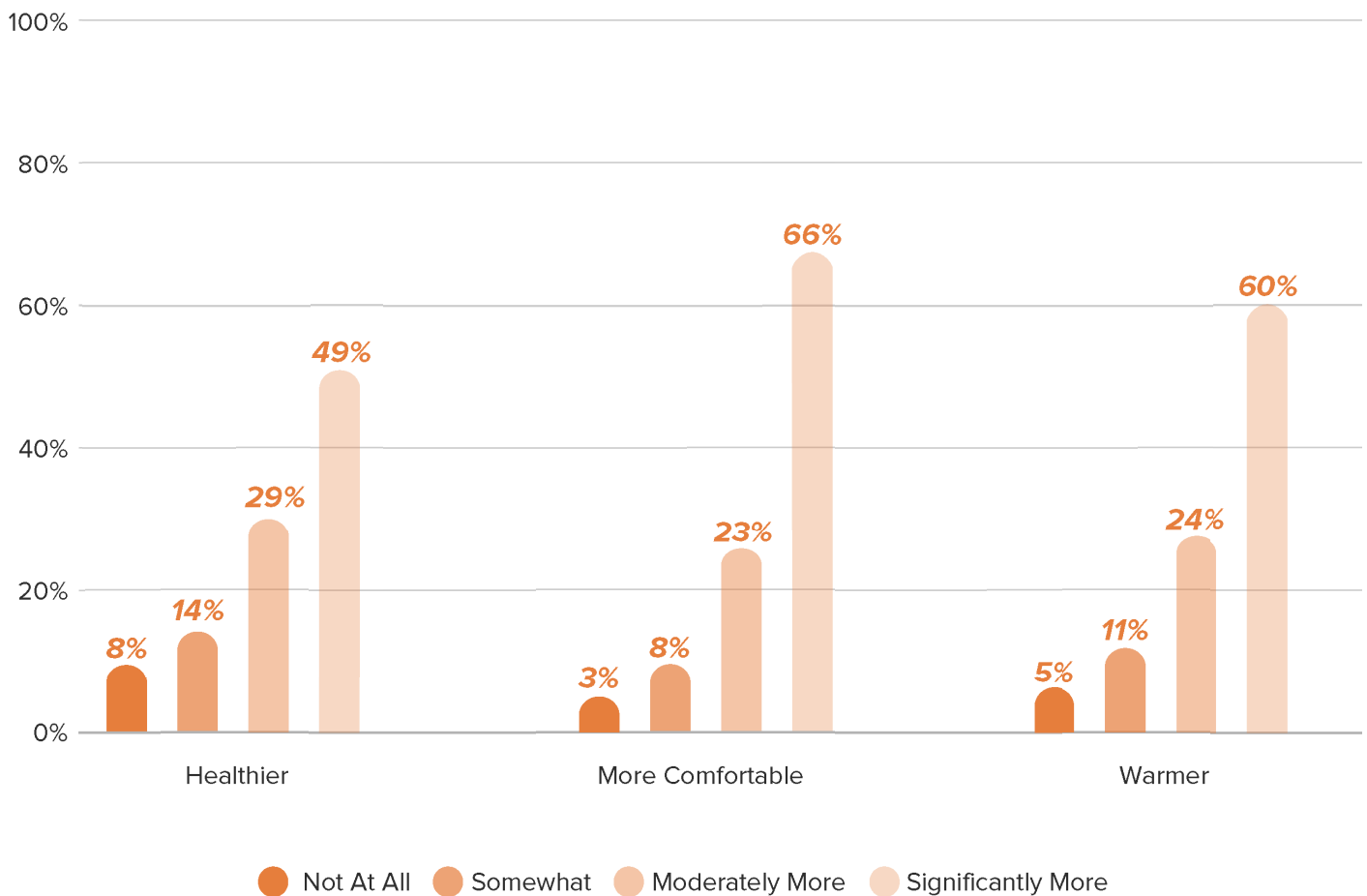
SURVEYS

Homeowners reported a number of positive health impacts for themselves and their families, including better overall well-being, sleep improvement and decreased stress (Figure 1). “If it wasn’t for Duke I could still be in the hospital. Heat affects me very bad with my medical condition so to feel cooling has

made a world of difference. I am now able to keep my body temperature down,” reported one homeowner. Likewise, homeowners said they generally feel healthier, more comfortable and warmer as a result of the Helping Home Fund (Figure 2).

FIGURE 2 • HOMEOWNER SURVEY RESPONSES

Survey question: Are you healthier / more comfortable / warmer in your home because of the improvements made?



SURVEYS

Service Provider Survey

The service provider survey was developed to assess the effects of the Helping Home Fund on participating service providers, their crews and subcontractors, and the homeowners they served. Twenty-four participating service providers were sent the survey via email, and all responded. The service providers had a very positive view of the Helping Home Fund. They applauded the staff, communication, benefits to homeowners, flexibility and reimbursement process. According to one service provider, “Overall, (the) Helping Home Fund has been both impactful for the community and rewarding for our agency to serve others in need. We would love to be considered for future opportunities.”

In particular, service providers praised the Helping Home Fund for its effect on low-income homeowners: Every provider responded that the program had a positive influence. They reported that an average of 44 percent of the homes they worked on through the Helping Home Fund would have otherwise been deferred.

“It has allowed us to serve more people in our counties that would not have gotten any service this fiscal year.”

Fifty-four percent of respondents felt there was a strong positive influence of the Helping Home Fund on the local community. In terms of service provider hiring, 46 percent of service providers indicated that the program affected staff employment, 4 percent said it somewhat did, and 50 percent said it did not.

The most commonly completed measures by service provider-based (i.e., agency-based) crews included insulation and air sealing, duct sealing and structural repairs to roofs, stairs, railings and windows (Table 7). Subcontractors also performed substantial work. Service providers reported that during 2015 and 2016, subcontractors were hired to help complete over 90 percent of jobs, which included electrical work, heating/cooling system repair or replacement, and plumbing (Table 7). All service providers noted that the quality of the contractor crews was either good or excellent, and most (83 percent) did not have difficulty finding contractors to work on homes. When there was difficulty, it was typically regarding electrical contractors.

The service providers reported receiving funding from a variety of sources in addition to the Helping Home Fund. As noted earlier, more than \$17 million was leveraged from the NCWAP, NCHFA and PNC Home Beautification, as well as other undisclosed funding sources. Service providers noted some variability and uncertainty in funding over the last five years. One

TABLE 7 • SERVICE PROVIDER SURVEY RESPONSES

Survey question: What measures did you install with an agency-based crew? What measures did you install using subcontractors? Check all that apply.

MEASURE	NUMBER OF SERVICE PROVIDERS USING AGENCY-BASED CREWS	NUMBER OF SERVICE PROVIDERS USING SUBCONTRACTORS
PLUMBING	2	19
ELECTRICAL	2	23
HEATING/COOLING REPAIR/REPLACEMENT	2	22
INSULATION/AIR SEALING	13	13
DUCT SEALING	13	11
STRUCTURAL REPAIRS	11	13

SURVEYS

service provider stated, “With the support of (the) Helping Home Fund, we were able to expand service delivery to Duke Energy Progress customers. Our agency’s primary funding source was limited for FY 2017; therefore, Helping Home Funds were leveraged

and resulted in more customers receiving home improvements to support energy use reduction and for some improved health conditions. In addition, the opportunity to complete appliance replacement might not have happened without Helping Home Funds.”

MONETIZING NON-ENERGY IMPACTS

To get a better understanding of the monetization of non-energy impacts of the Helping Home Fund, we examined prior studies and program analyses. We relied heavily on a study conducted by Tonn, Rose, Hawkins, and Conlon (2014), which monetized non-energy benefits from the DOE WAP. This study was relevant for a number of reasons, including its focus on low-income housing and the overlap in non-energy measures being explored. It also used a robust sample size, attributing results to more than 80,000 homes.

Tonn et al. (2014) used a variety of approaches to monetize the non-energy impacts. The researchers evaluated pre- and post-weatherization survey data, relied on objective cost data from existing databases where available, and then performed monetization exercises to calculate the lifetime benefit over 10 years. The researchers categorized their results into three tiers based on the reliability of the outcomes. Tier 1 estimates were the most reliable, followed by Tiers 2 and 3. Tonn et al. also considered the value of lives saved in their analyses.

We also included data from a literature review from Schweitzer and Tonn (2003). The researchers reviewed approximately 25 articles; some were reports that presented primary research from

previous weatherization programs, and others used a meta-analytic approach to examine multiple studies. This effort led to a large set of non-energy benefits, many of which were not addressed by Tonn et al. (2014). Using the available data from the prior literature, Schweitzer and Tonn selected a point estimate for individual non-energy benefits to represent an average value that could be applied to nationwide weatherization programs. In this case, monetized values were calculated using a lifetime benefit over 20 years.

Tables 8 through 12 contain the relevant non-energy benefit monetization estimates from Tonn et al. (2014) and Schweitzer and Tonn (2003). We took certain steps to err on the side of caution with the data to avoid overestimating the monetized values. For Tonn et al., we de-rated their Tier 2 estimates (by 50 percent) and Tier 3 estimates (by 75 percent). We also did not take into account the value of lives saved. For Schweitzer and Tonn, when calculating the monetized value of all non-energy impacts, we only took into account the environmental benefit associated with natural gas, the lower value, and not electricity. All estimates were converted to 2017 dollars using historical consumer price index data.

MONETIZING NON-ENERGY IMPACTS

TABLE 8 • MONETIZATION OF ECONOMIC AND SOCIAL BENEFITS

Tonn et al. (2014) and Schweitzer and Tonn (2003)

NON-ENERGY BENEFIT	MONETIZED VALUE FROM TONN ET AL. (2014) VALUES BASED ON 10-YEAR LIFETIME BENEFIT	MONETIZED VALUE FROM SCHWEITZER AND TONN (2003) VALUES BASED ON 20-YEAR LIFETIME BENEFIT
INCREASED PROPERTY VALUE		\$244.80
DIRECT AND INDIRECT EMPLOYMENT		\$1,089.36
AVOIDED UNEMPLOYMENT BENEFITS		\$159.12
NATIONAL SECURITY		\$436.56
REDUCED MOBILITY		\$378.08
LOST RENTAL		\$1.36
IMPROVED WORKPLACE PRODUCTIVITY (SLEEP)	\$512.17	
IMPROVED HOUSEHOLD PRODUCTIVITY (SLEEP)	\$375.44	
FEWER MISSED DAYS AT WORKS	\$227.62	
WATER/SEWER SAVINGS		\$368.56
REDUCED NEED FOR SHORT-TERM LOANS	\$39.99	
REDUCES TRANSACTION COSTS		\$50.32
TOTAL	\$1,155.22	\$2,728.16

TABLE 9 • MONETIZATION OF HEALTH AND SAFETY BENEFITS

Tonn et al. (2014) and Schweitzer and Tonn (2003)

NON-ENERGY BENEFIT	MONETIZED VALUE FROM TONN ET AL. (2014) VALUES BASED ON 10-YEAR LIFETIME BENEFIT	MONETIZED VALUE FROM SCHWEITZER AND TONN (2003) VALUES BASED ON 20-YEAR LIFETIME BENEFIT
CO POISONING*	\$4.19	
FEWER FIRES	\$50.04	\$92.48
FEWER ILLNESSES		\$74.80
THERMAL STRESS (COLD)	\$194.28	
THERMAL STRESS (HEAT)	\$95.79	
ASTHMA RELATED	\$2,270.09	
REDUCED NEED FOR FOOD ASSISTANCE	\$940.16	
INCREASED ABILITY TO AFFORD PRESCRIPTIONS	\$1,090.01	
REDUCED LOW-BIRTH WEIGHT BABIES FROM HEAT-OR-EAT COMPROMISE	\$55.96	
TOTAL	\$4,700.52	\$167.28

MONETIZING NON-ENERGY IMPACTS

TABLE 10 • MONETIZATION OF UTILITY SERVICE BENEFITS

Tonn et al. (2014) and Schweitzer and Tonn (2003)

NON-ENERGY BENEFIT	MONETIZED VALUE FROM TONN ET AL. (2014) VALUES BASED ON 10-YEAR LIFETIME BENEFIT	MONETIZED VALUE FROM SCHWEITZER AND TONN (2003) VALUES BASED ON 20-YEAR LIFETIME BENEFIT
CARRYING COST OF ARREARAGES		\$77.53
BAD DEBT WRITE-OFF		\$121.04
FEWER SHUTOFFS AND RECONNECTIONS FOR DELINQUENCY		\$10.88
AVOIDED RATE SUBSIDIES		\$28.56
INSURANCE SAVINGS		\$1.36
REDUCED GAS SERVICE EMERGENCY CALLS		\$137.36
FEWER NOTICES AND CUSTOMER CALLS		\$8.16
TRANSMISSION AND DISTRIBUTION LOSS REDUCTION		\$65.28
AVOIDED SHUTOFFS AND RECONNECTIONS		\$23.12
TOTAL	\$0	\$473.29

TABLE 11 • MONETIZATION OF ENVIRONMENTAL BENEFITS

Tonn et al. (2014) and Schweitzer and Tonn (2003)

NON-ENERGY BENEFIT	MONETIZED VALUE FROM TONN ET AL. (2014) VALUES BASED ON 10-YEAR LIFETIME BENEFIT	MONETIZED VALUE FROM SCHWEITZER AND TONN (2003) VALUES BASED ON 20-YEAR LIFETIME BENEFIT
AIR EMISSIONS - ELECTRICITY		\$1,324.64
AIR EMISSIONS - NATURAL GAS		\$435.20
OTHER BENEFITS		\$745.64
TOTAL	\$0	\$2,505.48

TABLE 12 • MONETIZATION OF ALL NON-ENERGY BENEFITS

Tonn et al. (2014) and Schweitzer and Tonn (2003)

NON-ENERGY BENEFIT	MONETIZED VALUE FROM TONN ET AL. (2014) VALUES BASED ON 10-YEAR LIFETIME BENEFIT	MONETIZED VALUE FROM SCHWEITZER AND TONN (2003) VALUES BASED ON 20-YEAR LIFETIME BENEFIT
ALL	\$5,856	\$4,550

Note. The total monetized value from Schweitzer and Tonn (2003) excludes air emissions associated with electricity.

MONETIZING NON-ENERGY IMPACTS

The two studies reveal that weatherization and other energy efficiency upgrades can produce a wealth of non-energy benefits with values in the thousands of dollars. At the same time, it is worth noting the lack of overlap in the impacts that Tonn et al. (2014) and Schweitzer and Tonn (2003) examined. Therefore, the overall value of non-energy benefits may be even higher than those reported here.

Given the similarities in the housing stock, occupants and measures installed in the Tonn et al. (2014) and Schweitzer and Tonn (2003) studies when compared to the Helping Home Fund, it is possible to assume that participants in the Helping Home Fund received a similar level of non-energy benefits. Even with our conservative estimates, the non-energy benefits associated with the Helping Home Fund, then, could approach an average of \$10,000 per home (the sum of the total non-energy benefits from the two studies). Indeed, the homeowner survey results confirm that those participating in the program did receive non-energy benefits, from health improvements to enhanced comfort and increased ability to stay in their homes. These benefits can be

particularly important for occupants who are children, elderly, or have disabilities, respiratory illness or asthma.

The Helping Home Fund was not designed to reduce overall energy use but rather to provide other benefits to low-income customers, such as improved health, comfort and safety. For example, approximately 35 percent of the homes had non-functioning heating systems and the program was able to provide new systems to these customers. The program also provided new washers, dryers and room air conditioning units, since other programs typically did not address this. However, because the program highly leveraged the NCWAP, we can assume that these customers would also receive energy benefits. Based on the literature review, DOE WAP achieves average lifetime energy savings of \$4,890 per home (Tonn, Carroll et al. 2014).

Table 13 summarizes the average costs and benefits for participating homes based on total invested funds and estimated benefits from the literature review.

TABLE 13 • SUMMARY OF COSTS AND BENEFITS FOR HELPING HOME FUND

	AVERAGE PRESENT VALUE PER HOME	PRESENT VALUE FOR TOTAL HOMES
ENERGY BENEFITS (COST SAVINGS) ¹	\$5,115.33	\$17,985,500
NON-ENERGY BENEFITS ²	\$10,312.83	\$36,259,910
ECONOMIC AND SOCIAL	\$3,883.38	\$13,653,964
HEALTH AND SAFETY ³	\$4,775.32	\$16,790,025
UTILITY SERVICE	\$473.29	\$1,664,088
ENVIRONMENTAL ⁴	\$1,180.84	\$4,151,833
TOTAL BENEFITS	\$15,428.16	\$54,245,410
TOTAL COSTS	\$10,124.37	\$35,597,294
HELPING HOME FUNDS	\$5,151.68	\$18,113,294
LEVERAGED FUNDS	\$4,972.69	\$17,484,000

1. Value based on Tonn, Carroll et al. (2014)

2. Value (and subcategories below) based on summed benefits of Tonn et al. (2014) and Schweitzer and Tonn (2003)

3. Uses the lower monetized estimate of fewer fires, from Tonn et al. (2014)

4. Excludes air emissions associated with electricity from Schweitzer and Tonn (2003)

CHALLENGES AND LESSONS LEARNED

- 

The NCCAA was the appropriate choice for administering these funds, forming a valuable relationship with Duke Energy. The NCCAA provided access to a network of service providers who were already intricately involved in low-income communities across the state. These service providers were able to quickly access homeowners who met the requirements for participation in the Helping Home Fund. The NCCAA also saw value in being involved with individual agencies throughout the implementation of the program, getting to know their particular challenges and strengths. With this experience and data, the NCCAA is able to provide recommendations to the NCWAP to improve overall performance.
- 


The NCCAA collaborated with Lockheed Martin to assist with the administrative duties of the program. Lockheed Martin is a strong partner, providing invaluable recommendations for program implementation, QC and data documentation. In addition, Lockheed Martin oversaw key communication and training with service providers that kept the program running smoothly. The ability to adapt and be flexible with service providers, who had varying degrees of experience with implementing programs, was essential.
- 

Funding levels for individual measures (health and safety - \$800 and appliances - \$800) were initially too low, resulting in huge requests for exceptions. As a result of these requests, funding for health and safety was increased to \$3,000 per home and appliances to \$2,000 per home in 2016.
- 

Funding allocation for administrative costs (5 percent) was insufficient for some of the service providers; however, this could not be changed due to the regulatory filing.
- 

Delays in obtaining contracts and funding between the service providers and the NCWAP caused issues with completing projects in a timely manner.
- 

While the data collection process was thorough, some data was not collected during this initial spending cycle but was later learned through the customer surveys. In the future, the Helping Home Fund may consider including the following in data collection:

 - **Number of occupants by age group (to capture number of elderly/children)**
 - **Number of occupants with asthma or disabilities**
 - **Tracking of leveraged funds per home**
 - **Tracking of when measures are installed**
 - **Pre-retrofit survey of homeowners**
- 

Now that the service providers have been oriented and trained to the program, it should be less costly for them to support the program.
- 

Based on some of the homeowner surveys, it was determined that they did not realize Duke Energy had funded some of their repairs. While a brochure was developed and available for the agencies to provide homeowners, its use may have dwindled over time. There is an opportunity for better marketing of the program to both homeowners and local communities.
- 

There were mixed reviews of LM Captures, which is understandable when working with a network of providers with varying degrees of experience with technology and availability of local resources. Role-based dashboard reports provided updates for status and planning. The NCCAA and Lockheed Martin worked closely with service providers to provide one-on-one customer service and support during program launch

CHALLENGES AND LESSONS LEARNED

and throughout the program. Feedback from service providers has resulted in ongoing updates to LM Captures, including easily identified required fields, less data entry on the home page, additional options in drop-down selections and revisions to heating/cooling data entry fields.



Programs such as the Helping Home Fund are not designed to pass energy efficiency tests. Therefore, the utility only receives funds in special cases, such as during rate cases or mergers. However, evaluating non-energy benefits in addition to traditional energy benefits can help determine the true cost-effectiveness of these programs, and allow the utility to capture the benefits such a program can offer.



Weatherization service providers are limited in the funds they can spend on health and safety measures, causing many homes to be deferred each year. Working closely with service providers ensured that they used the Helping Home Fund monies in the anticipated manner. This funding source, along with others such as the NCHFA's

Single Family Rehab program, works well with WAP so that homes can be retrofit, and homeowners benefit from access to multiple programs that can address different needs. As one example, the Macon County Housing Department "was able to use the monies from the Helping Home Fund in conjunction with other programs such as the Urgent Repair Program, LIHEAP Heating and Air Repair and Replacement Program (HARRP), Single Family Rehab Program and the Weatherization Program."



Leveraging other programs, while a benefit, was also a challenge for some service providers. It took time for providers to learn how to effectively use different funding sources on the same homes. To help them get up to speed, the Helping Home Fund used multiple methods to train service providers, including webinars, on-site training and ongoing mentoring. Overall, they found that one-on-one training was more effective than group training. The QC field visits were an additional training opportunity for service providers.

NEXT STEPS

The Helping Home Fund recently received an additional \$2.5 million when Duke Energy merged with Piedmont Natural Gas. This money will go toward a similar program and will be used in the following ways: \$800 for heating/cooling repair and/or maintenance, \$3,000 for health and safety, and \$2,000 for appliance replacement (refrigerators, washers, dryers, room air conditioners and dehumidifiers). Duke Energy decided to reduce the

allocation toward heating/cooling systems due to the limited funding, and to allow the funds to be available over a 12-18 month period.

With the success of the Helping Home Fund, the team is sharing its experience with stakeholders around the country so that others may learn from it and build upon it.

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ABBREVIATIONS AND ACRONYMS

DEC	Duke Energy Carolinas
DEP	Duke Energy Progress
DOE	Department of Energy
HHF	Helping Home Fund
HSPF	Heating Seasonal Performance Factor
LIHEAP	Low Income Home Energy Assistance Program
LM Captures	Database developed and maintained by Lockheed Martin
kWh	Kilowatt-hours
LP	Liquid Propane
NCCAA	North Carolina Community Action Association
NCHFA	North Carolina Housing Finance Agency
NCWAP	North Carolina (State) Weatherization Assistance Program
PNC Home Beautification	Fund offered by PNC bank
QA	Quality Assurance
QC	Quality Control
SEER	Seasonal Energy Efficiency Ratio
WAP	Weatherization Assistance Program

APPENDIX I • SURVEYS

HOMEOWNER SURVEY

Intro Section: (Provide context and explain the value of participating in the survey)

Hello, my name is ____ and I am calling on behalf Duke Energy. I'm calling today because your household participated in a program to receive free home improvements through the XXX Weatherization Agency. As part of this program, a contractor would have come into your home and installed free energy saving products and made home improvements. We would like to take just a few minutes to ask you a few questions.

Are you the person in your household who is most familiar with the improvements that were made to your home?

- ☐ Yes ☐ Don't know
☐ No ☐ Refused

We're speaking with customers who have participated in the program to complete a short survey to learn about their experience and satisfaction with the program. This is not a sales call, and all of your responses will be kept confidential.

Homeowner questions

1. How many children under the age of 18 currently live in the home?
2. How many people over the age of 60 currently live in the home?
3. How many residents in your household identify as disabled?
4. How many residents in your household identify as having a respiratory illness (e.g., asthma)?
5. Can you recall any of the weatherization improvements that were specifically made to your home?
6. Are you aware that the Duke Energy Helping Home Funds were used in your home?
7. If yes, do you know which improvements were paid for by HHF?

- 8-10. Are you healthier / more comfortable / warmer in your home because of the improvements made?

- ☐ Not at all ☐ Moderately more
☐ Somewhat ☐ Significantly more

11. Have the upgrades to your home allowed you to have more money available to pay for other necessities?
☐ Definitely ☐ Somewhat ☐ No
12. Have you (or any family members) noticed any positive health impacts due to the upgrades to your home? Check all that apply.
☐ Positive impacts to health, Less doc visits, overall well-being is better, mental health improvement, improvement in sleep, decreased stress, less medication, decreased asthma symptoms, Other (fill in the blank)
13. Have the improvements made on your house made it possible for you to remain at home (as opposed to needing to move to another location)?
☐ Yes ☐ No
14. Has your life been made easier through these upgrades?
☐ Yes ☐ No
15. Do you have better accessibility or access to your home because of these upgrades (e.g., ability to get in and out of your home)?
☐ Yes ☐ No
16. Do you feel safer in your home (e.g., from injury due to durability issues)?
☐ Yes ☐ No ☐ Somewhat
(If yes or somewhat, please describe)
17. Any other comments regarding Duke Energy's Helping Home Fund you would like to share?

That is all the questions I have today. Thank you so much for your time and have a great day.

APPENDIX I • SURVEYS

Service Provider Survey

Duke Energy launched the Helping Home Fund in North Carolina in January 2015. This fund was designed to assist low-income customers with managing their energy costs while also addressing health and safety. As the first round of funding comes to a close, we are reaching out to participating Weatherization Agencies to hear your feedback. We want to learn about your experience with the program, as well as gather data on how the program impacted local communities. We sincerely appreciate you taking the time to provide responses to the following questions.

Service provider questions

1. Contact Info:
 - ☐ Name
 - ☐ Agency
2. Has the Helping Home Fund had a positive impact on the low-income homeowners that you serve?
 - ☐ Yes, Somewhat, No
3. Have you noticed any positive effects on the local community (beyond the occupants of the homes) from your participation in the Helping Home Program?
 - ☐ Yes, Somewhat, No
4. What % of homes were you able to work on that would have been deferred because of the Helping Home Fund?
5. Did the Helping Home Program have an impact on how many staff your agency employed during the program years?
 - ☐ Yes, Somewhat, No
6. What types of funding does your agency receive on an annual basis? Check all that apply.
 - ☐ LIHEAP
 - ☐ NCHFA
 - ☐ DOE Weatherization
 - ☐ Utility Funds
 - ☐ PNC Beautification Funding
 - ☐ Private Funds
 - ☐ Other (_____)
7. Has that funding varied over the last five years? If yes, please explain to what degree it has varied.
8. What measures did you install with an agency-based crew?
 - ☐ Plumbing
 - ☐ Electrical
 - ☐ HVAC Repair or Replacement
 - ☐ Insulation/Air Sealing
 - ☐ Duct Sealing
 - ☐ Structural Repairs (Roof, Stairs, Railing, Windows)
9. Did the Helping Home Fund impact your ability to retain an agency-based work crew?
 - ☐ Yes, Somewhat, No
10. What measures did you install using subcontractors?
 - ☐ Plumbing
 - ☐ Electrical
 - ☐ HVAC Repair or Replacement
 - ☐ Insulation/Air Sealing
 - ☐ Duct Sealing
 - ☐ Structural Repairs (Roof, Stairs, Railing, Windows)
11. How was the overall quality of contractor crews?
 - ☐ Excellent / Good / Fair / Poor (If fair or poor, please explain what was lacking)
12. Did your agency have difficulty finding local contractors to work on homes?
 - ☐ Yes, Somewhat, No
13. If yes, any suggestions of what could help remedy this situation?
14. If yes, how did this affect what work was completed?

APPENDIX I • SURVEYS

15. If yes, what type of contractors did you having trouble finding?
 - Plumbing
 - Electrical
 - HVAC Repair or Replacement
 - Insulation/Air Sealing
 - Duct Sealing
 - Structural Repairs (Roof, Stairs, Railing, Windows)
16. What percentage of jobs did you hire subcontractors to help you complete the work in 2015 and 2016?
17. If the Helping Home Fund was to be continued as a program, what improvements / changes would you suggest?
18. What worked well about the program?
19. Were there any houses or families that stood out with regard to the impact you observed from participation in the program?
20. Is there anything you want to tell us about your experience with this program?
21. Can we contact you with additional questions?
If yes, Name, email address, phone number.

APPENDIX II • HOMEOWNER RESPONSES

I really like the program. Years before I didn't know about different things to make my home efficient. I have told people about it too. I feel like Duke Energy really tried to help people. Thank you so much.

I am so amazed by all Blue Ridge took care of for me with my new ac, the insulation, the moisture barrier the sensor for carbon monoxide and the replacing of my duct work. I am also happy to learn that Duke Energy had a hand in this too. Kudos to Duke Energy. Keep doing what you all doing. I have a testimony about everything that was done for me. I am so grateful. Mr. Dale and his crew were amazing. They did an outstanding job. They gave me a sense of everything going to be alright. The inspector was also great and offered his number to if anything should go wrong with my unit to call him. They did everything they said and much much more. This program is great for older disabled people like me. Anytime you need live customer data or feedback, please call me because I have nothing but good things to say about Blue Ridge and Duke Energy.

I just want to say everybody was nice and good to me. I thank you all. I love my new ac unit. I didn't know Duke Energy was responsible for doing that. I don't have to worry about that being done anymore. This is a good thing to have and I am thankful.

It was very helpful and nice to know assistance is out there for people who may be in a struggle. This is wonderful program also for older customers or those with health issues. I was more concerned with the efficiency of my home and the insulation has been great since added. I'm not worried about how often my units cycles on and off.

Everybody was so kind that came out. Very polite and were courteous to take off their shoes and not track dirt into the home. They also cleaned up after

themselves. Very thoughtful. I am thankful for the good Lord to make something like this available to me. The agency also helped replace the faucets and I got light bulbs. I am very thankful for this program. I'm not sure if anything can be done or if someone can direct me, but I am in need of windows. The windows I have now are terrible. I'm using duct tape and plastic to close them shut. I would just love if someone could help guide me to a agency or a program that can help me with my windows.

I thank God for the program. Really overwhelmed with joy and happiness that there was such a program available to help me.

Appreciate this program so much. Helped me because I would have had to find another job to have to done some of the things that were done, especially the new heat pump that was installed. I was blessed with this program and to be able to qualify. I am thankful. It didn't push me into anymore debt and although I am on a fixed income at 73 yrs. old I can still pay my bills and not scraping to make ends meet.

It's the best thing that happened to me, I couldn't afford to have these structure repairs done.... wonderful thing to happen to me it's highly blessing that fell on me!!! the best thing that could have happened for me! So grateful and thankful

All of them were very nice people. I am definitely appreciative of having an electrical heating system in my house. I feel safer now since I don't have to mess with the kerosene heating and worrying about it tipping over or not changing the filter or the possibility o hit burning down more house.

APPENDIX II • HOMEOWNER RESPONSES

Where the back porch was they built steps with a handrail... I was very appreciative, I needed the work done and had no idea how I was going to do it, I was so happy to qualify for the program.... it was a blessing.... I said my prayers and this happened... I really appreciate it....

I am so grateful.....when the contractors came out to my house - I cried.... I was so thankful..... I just want to thank everyone at duke energy from the bottom of my heart!! I don't have to worry about spinning my air unit by hand....it would freeze up and we would have to cut it off by the breakers.... old a/c unit finally stopped running... I had everyone in my family send a letter to the agency thanking them for everything....I send them Christmas cards, send them thank you notes.....

I thought my light bill would come down....but it hasn't.... put insulation in the roof, I appreciate all of the improvements that were done..... thankful for the help.... did a lot of work....

I appreciate the program and I would recommend it to anyone. You guys did such a wonderful job, from the bottom of my heart.

I'm so grateful...I. would like to say thank you from the bottom of my heart... it was getting to the crisis mode where I thought I would have to move..

They put insulation in attic, fixed heat ducts so heat would go down... it's a good thing to help people, it's a good fund if people don't have the income to put stuff in...it's good.

The contractors that were used were excellent, the approach, communication, they were a great group.

I would like to say thank you for the program, its been a life saver...

I think this is a great program. It helped me and my family. I hope more funding becomes available to help other families.

I must say that everyone who came out I was well pleased with. They were all kind mannered and promised to be here and was here at the time given. I am very happy with all things done and happy for my new ac unit. The guy who installed my new system explained everything to me very well.

The crew was great. I hope Duke will be about to continue this service. It has a lot of benefits to the community and I appreciate being able to have had the opportunity. I was out of work during the time my new system was installed so I am thankful. This program is one of the Best programs Duke offers and is an excellent service.

I am surprised that they were able to install my new heat and cool unit in my home because I have an old mill house so I am very grateful that they managed to install it. They did a great job. Everyone was nice and cleaned up after themselves. The inspectors were nice too. I wish I had money to contribute to this fund to help others in need because it is hard when you need improvements and don't have the money or means to pay for it. I am thankful Duke has a program like this and the weatherization agencies.

APPENDIX II • HOMEOWNER RESPONSES

I just think is Godsend. It is such a wonderful program for senior citizens, someone who is disabled that cannot afford to help themselves.

I'm on equalized payment and my bill went from 193 to 120 dollars per month... that extra savings can pay for another bill... I was flabbergasted when I qualified for the program, my heat pump was replaced, washing machine is great, (this machine wrings out clothes so less drying) replaced every light bulb... they were fabulous, couldn't believe it... I work at a non-profit organization, it was unreal, it I hadn't been worked there i wouldn't have known about the program.

Power bill has gone from 500 to 200 dollars per month. We were using space heaters to heat the home & a window unit to cool the home. I'm 100% satisfied that they helped me as much as they did!

My mother doesn't have to worry about buying oil this winter or using a space heater, which is dangerous. Many people do not know about this program and its because of the line of work I am in to why I found out. This has been a life saver. I do not live with my mother but my brother and I were there when everything was being done and I don't know what we would have done without this program because financially we don't have the money to have made these sort of upgrades. My mother is elderly and it gives her now a sense of being safer, warmer and saving money. She can also stay in her own home and not in a living facility. This program saved our lives and we thank you so much.

Having the new windows make me feel safer. Overall I feel better and I am grateful and thank you all.

It was just wonderful and I thank and appreciate it. It's fantastic that Duke can set aside funds to help people like myself that is on a fixed income and elderly. I am a widower and I can't thank you all enough for my new air conditioning system. I am very appreciative of everything and Duke.

The program has done a lot for a lot of people in the neighborhood. I hope that the program continues and help others. My light bill is very very good. I really enjoy the way it is. I hope they decide to do more of this program, especially for senior people who can't afford it. It really came in handy.

It's a great program to help people. I always worked and made it on my own and I have been very independent and then had a lot of medical issues. I have been in a pretty bad shape, and my stuff went out, so I was glad for that program.

I think is a great program for people who really need it. Sometimes is hard to make meets end, so anything that you can do to lower the electric bill, so I think you should do more of these programs.

I really want to thank you for having the program. It helped very much. I am in a lot of medications, so this helped me a lot. I have told people that Duke Energy helped me a lot and that's why I feel better. My bill also decreased and is very nice now.

The whole process was painless. I couldn't have asked for a better set of people. Mark and David were exception. They were great. Neat and courteous. I was so appreciative I cooked them a little something to say thanks.

APPENDIX II • HOMEOWNER RESPONSES

I never knew that Duke Energy was involved. The people that worked on the house they were some of the best people ever. The people that were hired were great people.

I think the program is amazing, for citizens who pay taxes like myself. These improvements allow me to tell others about this program. It's great. I am truly blessed.

They did so much!!! I think it's a real good program who need assistance.. when winter comes I'll really get the benefits.... appreciate the program, a really good program.... the people who administrated the program did a great job! They let me know all of the information.

I just think the program is wonderful. They did so much for us. Me and my sister live here and we are getting out there in age, fixed income, and we couldn't have done any of this without you guys. We don't have to worry about things breaking down. We know that we will be able to stay here for a long time. It is just wonderful!

They all did a fantastic job with the upgrades. After they finished my evaluation my refrigerator went out 4 days later, and it wasn't included.... thank the lord for that program and I was eligible for it. it's a great thing you do for people who can't afford those things, i don't know what i would have done... all the guys were very nice and friendly and everything I'm glad to be a duke energy customer.

Thanks a lot, if it weren't for the upgrades I don't know what me and my mom would do, keep

the program going... most definitely... if you can help anybody else like you've helped us, please continue. It was amazing for us!! It was an amazing experience.. the people that did the work were very considerate of me and my home...

I think Duke Energy is good, everything is great, all the upgrades, I couldn't ask for anything any better thanks to duke power, what would we do without them.

Door is a lot more secure, windows are more secure.... previously on windy days you could actually hear the wind blowing inside, it was so bad the wind would move the blinds... there was a lack of sealing previously... I'm glad to know Duke Energy was behind a lot of it.... this place really needed it (public housing).

I think it is a good program for people that are on social security and can't afford big bills. Everyone who came out was really nice and I thank Duke Energy for helping me.

The little boys that the installed the equipment were really nice, they did a good job.. Ms. Cannon wanted to make sure everyone got involved with the installation got an A+ After my a/c was installed I told my girls "I believe I've went to heaven when I woke up."

It has made a world of difference... wasn't aware Duke Energy HHF was involved.. couldn't believe I was eligible for all this equipment... I want to thank Duke Energy for being a company that has helped a consumer, feels very very good!! Absolutely remarkable...

APPENDIX II • HOMEOWNER RESPONSES

Don't have to use plug in heat, feel safer now.... not worried about fires as much, fire/gas alerts system make customer feel safer... Duke Energy has done a wonderful job to help the seniors, a lot of customers can't afford a heating/cooling system, we didn't have the money to put in heating/cooling system. The people who installed the system did a good job, cleaned up before they left.... appreciate washer/dryer, appreciate that..... customer really appreciates everything to the highest..... they removed a lot of stuff from the bottom of the house and they had it all removed... can't complain about any of the services.

Feel safer in home because old heaters were bought from Walmart and they weren't as safe. The HHF has been a blessing, it has made our lives so much easier... Hopefully others can benefit from this program... our electric bills have been cut in 1/2...

I appreciate everything that was done. I appreciate it so much that I wrote thank you letters to everyone with Community Action Opportunities. I am very thankful. I used to burn oil and I didn't have to spend the money this year. They also upgraded my wiring to get the new heat pump in. They took good care in what they did and with me.

I am glad that Duke Energy had the funds to help and assist the disabled. It helped me tremendously. It has helped my bill a lot. It has decreased my bill for about \$100 or so.

I am just glad that it was available and we qualified for it, for our HVAC. It was really expensive for us because of kerosene.

I am so thankful for everything that was done for me. Everyone who came out from each of the companies

were very professional. Even the Inspectors were nice and not snobs. They assured me that all the electrical work was done correctly. They even installed a smoke and gas detector alarm.

I appreciate the new appliances, because they are more energy efficient. I know down the line they will help me with the electric bill. I greatly appreciate it.

Customer says he and his mother are on disability and it was blessing, and they really appreciated what Duke has done for them.

My personal opinion, I think this program is a blessing. I think that DE is one of the most wonderful companies to help people who are disabled. My husband passed away last year from cancer and this program helped me so much. I am so thankful.

I am greatly thankful for Duke Energy and this type of program. I was in shocked that I could apply and actually got accepted. They replaced my washer and dryer and my ac unit. They also gave me a refrigerator. My house was hot and moldy previous to the improvements and had deteriorated and had critters. I feel healthier overall. If it wasn't for Duke I could still be in the hospital. Heat affects me very bad with my medical condition so to feel cooling has made a world of difference. I am now able to keep my body temperature down. This is a mobile home so it isn't very efficient to begin with. Thank Duke and the weatherization Action Pathways for everything.

Everyone that was sent out was professional from start to finish. From the first inspector to the final inspection inspector. This was very convenient and mindful and everyone was friendly. Definitely keep this type of system around. I hope it can extend across the nation to others in need. I recommend it.

APPENDIX II • HOMEOWNER RESPONSES

Sad to hear that our fearless leader is trying to take programs away like this but I am grateful that it is available. Thank you so much for taking the time out to call to ask about my experience.

I would tell anyone that has the opportunity to do this to please do it immediately. Be careful who you said yes to, but if you know if it is a program that Duke Energy is responsible for, then they will take care of you.

I can breathe a lot better. You all did such a good job. Thank you all for doing this. I am so pleased. Everyone was so nice and the entire thing was enjoyable.

Keep program up. Elderly people need it. After you work all your life then to end up on a fixed income it's hard when things need to be fixed. Sometimes you have to choose to do without meds or maybe food depending on how bad it gets. I thank you all for doing this and keep it up.

Thankful for heat pump and thankful overall for everything that was done and is coming out to her home. During the winter customer feels a lot warmer and during the summer hot months she is a lot cooler. She has noticed breathing better although she doesn't have an issue breather. The quality of the air is better. In the past she has used fans but now feels better overall during the hot days.

If it wasn't for Duke Energy I don't know where I would have been this winter. With previously having to use a wood burner for heat which caused my sons breathing issues I am thank you to Duke for installing a new heat and cool system. I am tickled to death and so pleased of all the work that was done. I am

so happy that Duke cares about people who need help and from the bottom of my heart I am thankful.

I was not aware Duke Energy money was used towards the improvements in my home so knowing this is great and I appreciate you all so much. I also like the tips you send out on think that can be done in the home to save money like hanging the clothes to dry instead of using the dryer.

I sure appreciate the things that were done because it helped to better the household. To have a better heating and cooling unit helped a greater deal. They also did the cracks and the bathrooms which was good too.

I have nothing negative to say about my experience. The air conditioning company (Mr. Richard) was awesome. Make note that Mr. Richard explained that this was one of the biggest jobs they have done. It was starting from scratch. No insulation in the attic, no central heat or cool. They also added vent in bathroom and a main breaker. I am so very grateful and thankful and happy to recommend this is anyone I know. I had to wait 2-3 years for this and I am thankful my home had all these improvements made. Tell the program manager that this was exceptional for Duke and the other workers to do.

They did a good job and it really helped me a long way. They put windows in my home so it feels warmer and I truly appreciate everything that you all did. One person in here asthma is as bad and overall we feel good and is comfortable. Thank you so much.

APPENDIX III • SERVICE PROVIDER RESPONSES

WARM was able to assist so many families with these funds. We are so grateful, and wish there were more funds to continue to help so many more families that are in need.

We worked very hard within a short time frame to spend the original allocation, plus the additional funds we requested and received. In about a two year period, we installed over 175 heating systems, a great many appliances, and health & safety and weatherization measures. In spite of all that was accomplished, the need exists for that much more to be done.

It has been an great program for all our eligible clients.

We look forward to continuing to work with Duke, it has been an outstanding opportunity for our agency as well as the customers that have been touched by this program. It has given us the opportunity to bundle services with other agencies to serve customers and provide additional measures in the home.

This was a great program, but the need is still great (10x).

The program support team was very helpful in assisting us from the start to finish and we were able to leverage the funding to provide needed services to the low-income folks CADA serves.

This was one of the best programs we have administered to assist homeowners with appliances. (2x).

The staff at NCCAA and the Martin group were very helpful and easy to work with. The requests for exceptions were processed quickly as were agency reimbursements. This program was a win-win for all involved.

Overall, HHF has been both impactful for the community and rewarding for our agency to serve others in need. We would love to be considered for future opportunities.

Joel Groce with NCCAA did an outstanding job administering the dollars.

This has been a great program. The Duke HHF staff were great and very knowledgeable. Payments were also processed timely.

The HHF program has helped offset many program expenses and has allowed us to continue working longer through the year until the new contract is completed and/or funding is released.

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North Carolina Community Action Association



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Attachment B



Arkansas Public Service Commission

Standardized Annual Reporting Workbook v4.0 August 2017

General	Energy Efficiency Portfolio Data and Information		
Instructions Glossary	2017 EE Portfolio Information	2017 Program Year Evaluation	Historical Information
Entergy Arkansas, Inc.			

Annual Report Tables					Reports			Data	
EE Portfolio Summary	EE Portfolio Expenditures by Program	EE Portfolio Expenditure Summary by Cost Type	Company Statistics	Program Budget, Energy Savings & Participants	Portfolio Results Detail by Program	Portfolio Results Detail by Sector	Best Practices	Program Year Data	Next Annual Report Load Data
View	View	View	View	View	View	View	View	View	View

[Main Menu](#)**Table 1**[Next >>](#)**2017 Portfolio Summary**

Net Energy Savings		Costs			Cost-Effectiveness			Goal Achievement		
Demand MW	Energy MWh	Actual Expenditures	LCFC	Performance Incentives	TRC Net Benefits (NPV)	TRC Ratio	PAC Ratio	Commission Established Target % of Baseline	Actual Savings Achieved % of Baseline	% of Target Achieved (%)
104	264,992	\$ 57,141,646	\$ -	\$ 4,962,781	\$ 111,287,286	2.52	2.79	0.90%	1.49%	165%

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Table 2

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EE Portfolio Expenditures by Program

Program Name	Target Sector	Program Type	2017		% of Budget
			Budget (\$)	Actual (\$)	
Bring Own T-stat Pilot	Residential	Demand Response	130,676	68,912	53%
Efficient Cooling Solutions	Residential	Measure/Technology Focus	2,608,580	2,209,519	85%
Energy Solutions for Manufactured Homes	Residential	Market Specific/Hard to Reach	1,066,973	1,013,729	95%
Energy Solutions for Multi-Family	Residential	Market Specific/Hard to Reach	1,087,309	964,280	89%
Home Energy Solutions	Residential	Whole Home	11,798,620	11,736,577	99%
Lighting & Appliances	Residential	Consumer Product Rebate	4,708,434	4,521,562	96%
Residential Benchmarking Program	Residential	Behavior/Education	557,798	468,626	84%
Residential Direct Load Control	Residential	Demand Response	3,044,555	2,064,063	68%
Small Business	Small Business	Market Specific/Hard to Reach	4,184,886	4,269,781	102%
C&I Solutions Program	Commercial & Industrial	Custom	23,644,196	21,195,549	90%
City Smart	Commercial & Industrial	Market Specific/Hard to Reach	3,664,805	3,638,872	99%
Commercial Midstream	Commercial & Industrial	Consumer Product Rebate	1,228,253	1,116,444	91%
Agricultural Energy Solutions	Agriculture	Prescriptive/Standard Offer	1,018,569	765,606	75%
Agricultural Irrigation Load Control	Agriculture	Demand Response	3,092,606	2,837,698	92%
Energy Efficiency Arkansas	Residential	Other	198,507	197,986	100%
Regulatory	-	-	-	72,440	-
		Total	62,034,767	57,141,646	92%

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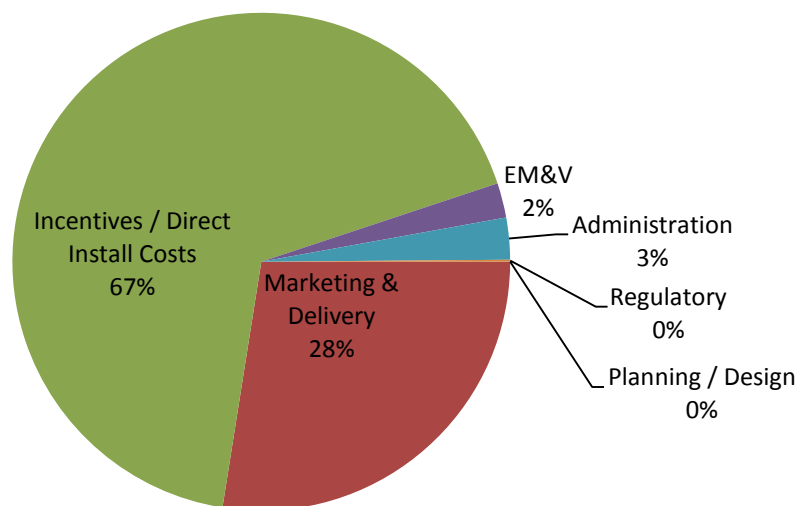
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EE Portfolio Expenditure Summary by Cost Type

Cost Type	2017 Total Expenditures			
	% of Total	Budget (\$)	Actual (\$)	% of Total
Planning / Design	0%	170,174	9,672	0%
Marketing & Delivery	27%	16,806,585	15,701,465	27%
Incentives / Direct Install Costs	65%	40,172,674	38,517,076	67%
EM&V	3%	2,073,388	1,285,628	2%
Administration	5%	2,811,946	1,555,365	3%
Regulatory	0%	-	72,440	0%
	100%	62,034,767	57,141,646	100%



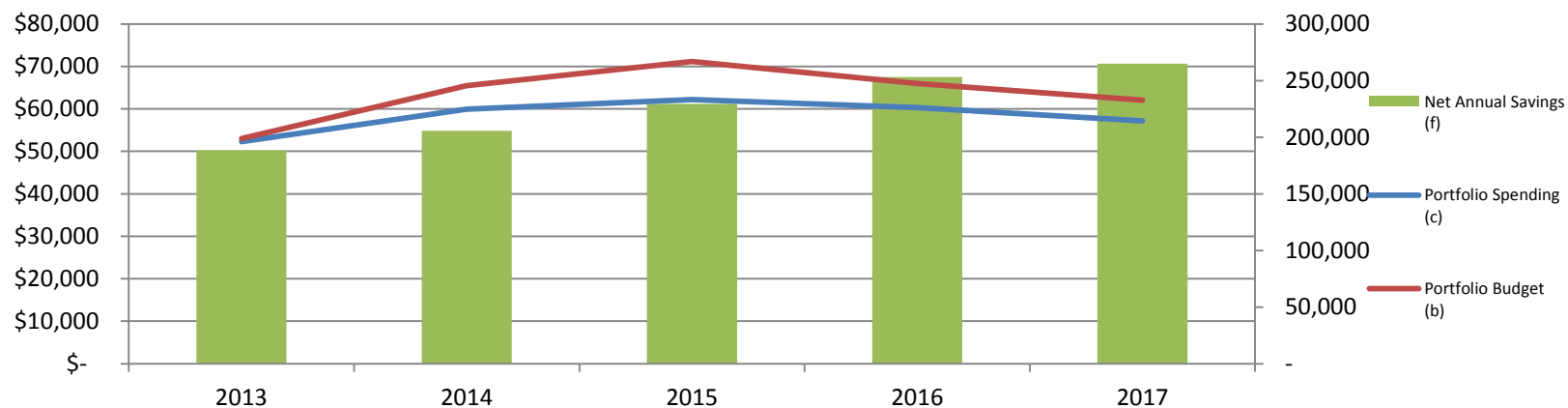
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Company Statistics

Program Year	Revenue and Expenditures					Energy				
	Total Revenue (a) (\$000's)	Budget		Actual		Total Annual Energy Sales (d) (MWh)	Plan		Evaluated	
		Portfolio Budget (b) (\$000's)	% of Revenue (%=b/a)	Portfolio Spending (c) (\$000's)	% of Revenue (%=c/a)		Net Annual Savings (e) (MWh)	% of Energy Sales (%=e/d)	Net Annual Savings (f) (MWh)	% of Energy Sales (%=f/d)
2013	\$ 1,678,683	\$ 53,032	3.2%	\$ 52,285	3.1%	20,859,130	165,469	0.79%	188,468	0.90%
2014	\$ 1,642,896	\$ 65,454	4.0%	\$ 59,914	3.6%	21,001,325	197,564	0.94%	205,507	0.98%
2015	\$ 1,820,805	\$ 71,178	3.9%	\$ 62,190	3.4%	21,160,228	186,555	0.88%	229,268	1.08%
2016	\$ 1,733,733	\$ 65,964	3.8%	\$ 60,270	3.5%	20,639,386	194,165	0.94%	253,201	1.23%
2017	\$ 1,739,545	\$ 62,035	3.6%	\$ 57,142	3.3%	20,888,455	238,130	1.14%	264,992	1.27%



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Table 5

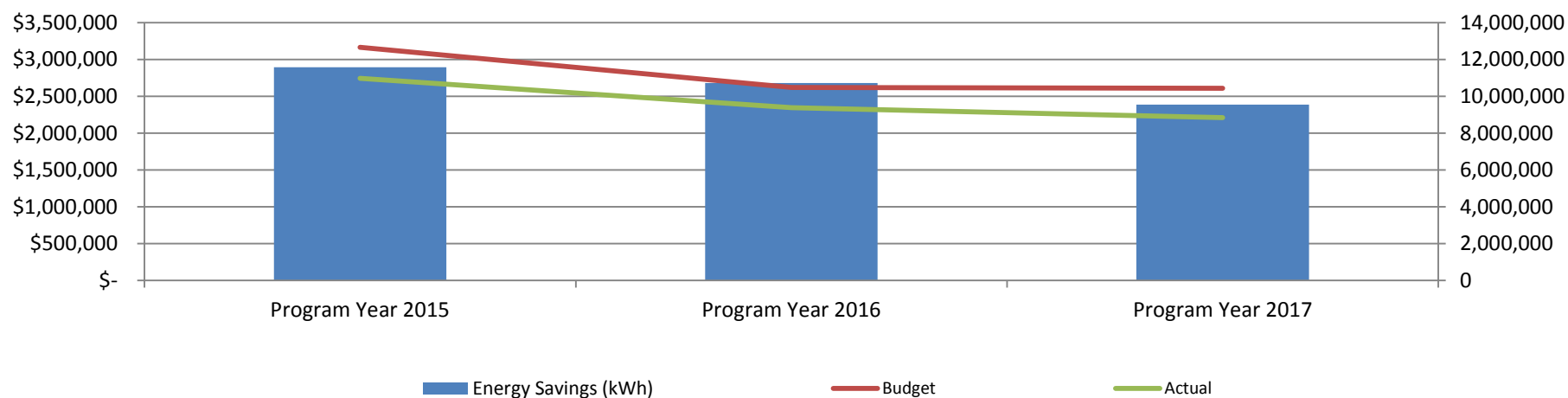
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Efficient Cooling Solutions

Select program from dropdown menu to view details.

Efficient Cooling Solutions

	Expenditures			Energy Savings (kWh)			Demand Savings (kW)			Participants		
Program	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
Program Year 2015	\$ 3,165,940	\$ 2,745,610	87%	9,100,000	11,572,605	127%	4,105	4,789	117%	10,061	7,478	74%
Program Year 2016	\$ 2,620,953	\$ 2,344,395	89%	16,141,000	10,724,845	66%	8,600	3,348	39%	10,061	4,324	43%
Program Year 2017	\$ 2,608,580	\$ 2,209,519	85%	17,446,000	9,548,026	55%	10,228	2,908	28%	5,999	2,548	42%



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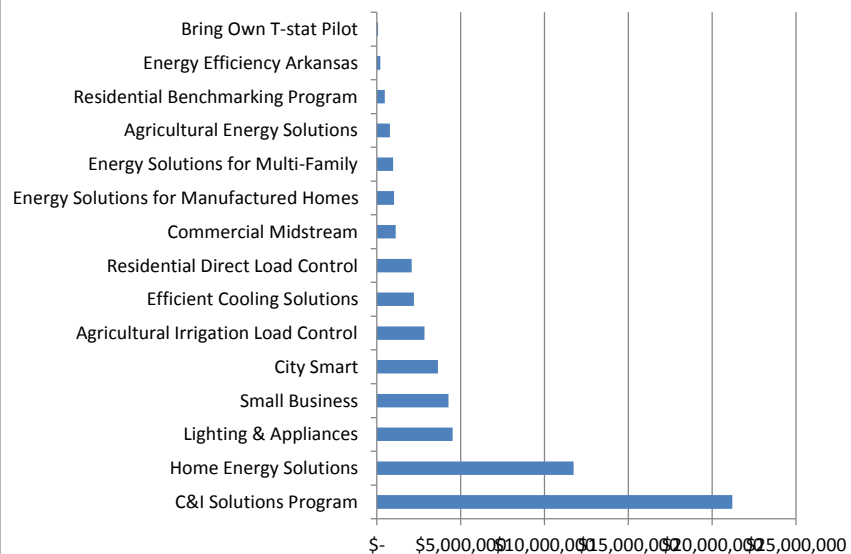
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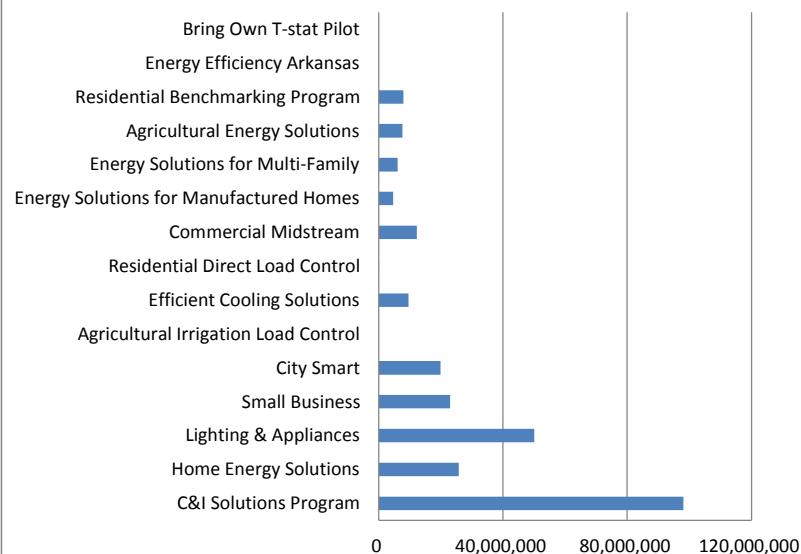
2017 Portfolio Results Detail

Program Name	Target Sector	Costs			Savings (kWh)			Participants			TRC Ratio
		Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
Bring Own T-stat Pilot	Residential	\$ 130,676	\$ 68,912	53%	0	0	-	750	55	7%	0.00
Efficient Cooling Solutions	Residential	\$ 2,608,580	\$ 2,209,519	85%	17,446,000	9,548,026	55%	5,999	2,548	42%	1.96
Energy Solutions for Manufactured Homes	Residential	\$ 1,066,973	\$ 1,013,729	95%	1,996,069	4,690,095	235%	900	641	71%	8.56
Energy Solutions for Multi-Family	Residential	\$ 1,087,309	\$ 964,280	89%	3,011,306	6,111,955	203%	4,000	1,898	47%	9.82
Home Energy Solutions	Residential	\$ 11,798,620	\$ 11,736,577	99%	22,638,739	25,757,464	114%	7,222	7,733	107%	2.82
Lighting & Appliances	Residential	\$ 4,708,434	\$ 4,521,562	96%	29,927,961	50,040,143	167%	2,261,358	291,634	13%	7.13
Residential Benchmarking Program	Residential	\$ 557,798	\$ 468,626	84%	9,118,435	7,901,231	87%	208,264	336,309	161%	0.87
Residential Direct Load Control	Residential	\$ 3,044,555	\$ 2,064,063	68%	0	1,734	-	22,184	23,075	104%	3.16
Small Business	Small Business	\$ 4,184,886	\$ 4,269,781	102%	13,247,024	23,005,941	174%	1,100	744	68%	1.92
C&I Solutions Program	Commercial & Industrial	\$ 23,644,196	\$ 21,195,549	90%	109,920,001	98,073,142	89%	850	764	90%	1.76
City Smart	Commercial & Industrial	\$ 3,664,805	\$ 3,638,872	99%	12,806,791	19,940,702	156%	85	367	432%	1.54
Commercial Midstream	Commercial & Industrial	\$ 1,228,253	\$ 1,116,444	91%	11,466,158	12,312,436	107%	849	912	107%	3.77
Agricultural Energy Solutions	Agriculture	\$ 1,018,569	\$ 765,606	75%	6,551,697	7,609,051	116%	118	51	43%	4.42
Agricultural Irrigation Load Control	Agriculture	\$ 3,092,606	\$ 2,837,698	92%	0	0	-	1,271	1,035	81%	1.43
Energy Efficiency Arkansas	Residential	\$ 198,507	\$ 197,986	100%	0	0	-	0	0	-	0.00
Regulatory		\$ -	\$ 72,440								
TOTAL:		\$ 62,034,767	\$ 57,141,646	92%	238,130,182	264,991,920	111%	2,514,950	667,766	27%	2.52

Costs



Savings (kWh)



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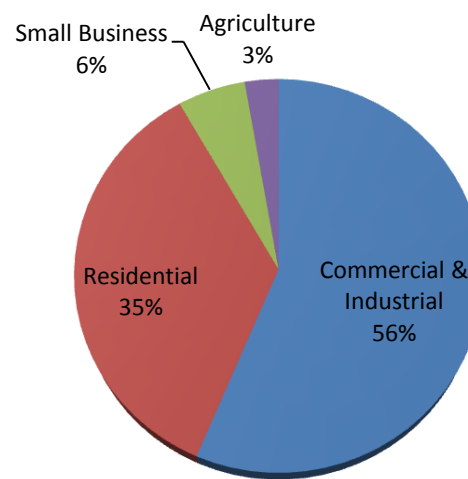
2017 Portfolio Results Detail by Target Sector

Target Sector	Costs			Savings (kWh)			Participants			TRC Ratio
	Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
Residential	\$ 25,201,452	\$ 23,245,255	92%	84,138,511	104,050,648	124%	2,510,677	663,893	26%	4.03
Small Business	\$ 4,184,886	\$ 4,269,781	102%	13,247,024	23,005,941	174%	1,100	744	68%	1.92
Commercial & Industrial	\$ 28,537,253	\$ 25,950,865	91%	134,192,950	130,326,280	97%	1,784	2,043	115%	1.84
Municipalities/Schools	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Agriculture	\$ 4,111,175	\$ 3,603,305	88%	6,551,697	7,609,051	116%	1,389	1,086	78%	1.96
Other	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Res/Small Business	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Res/C&I	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Small Business/C&I	\$ -	\$ -	-	0	0	-	0	0	-	n/a
All Classes	\$ -	\$ -	-	0	0	-	0	0	-	n/a
	-	-	-	-	-	-	-	-	-	-
TOTAL	\$ 62,034,767	\$ 57,069,206	92%	238,130,182	264,991,920	111%	2,514,950	667,766	27%	2.52

Select the Data to be Displayed in Chart

Savings (kWh)

Savings (kWh)



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Level of Adoption of NAPEE "Best Practice

Item #	1a.		1b.	1c.	EE Total Portfolio Expenditures (A) (\$000's)	2a.	
Program Year	FTEs	FTEs / \$1M of EE Spending	Training Sessions Attended	Training Sessions Man-Hours		Planning & Design (B) (\$000's)	As % of Total Portfolio Expenditures (%=B/A)
2017	70	1.2	175	12,704	\$ 57,142	\$ 10	0.0%

Index to Docket No. 10-010-U Issue #8 Items	
Item #	Description
1	Program Staffing and Training Requirements
2	DSM Program Design & Implementation
3	DSM Program Evaluation
4	Estimation of DSM Resource Potential
5	Shareholder Incentives for Program Performance
6	Resource Planning with Energy Efficiency
7	Utility Best Practices Guidance for Providing Business Customers with Energy Use Cost Data
8	Customer Incentives for Energy Efficiency Through Electric and Natural Gas Rate Design

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es" (Issue #8)

2b.		3a.	
Implementa- tion (C) (C=A-B-D) (\$000's)	As % of Total Portfolio Expenditures (%=C/A)	EM&V (D) (\$000's)	As % of Total Portfolio Expenditures (%=D/A)
\$ 55,846	97.7%	\$ 1,286	2.2%

Where Available?	
	Above
	Above
	Above
	Narrative Section 1.0
	Incentives Section
	Narrative Section 1.0
a	Narrative Section 3.3
	Narrative Section 3.3

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Program Name	Target Sector	Program Type	Delivery Channel
Lighting & Appliances	Residential	Consumer Product Rebate	Retail Outlets
Home Energy Solutions	Residential	Whole Home	Implementing Contractor
Efficient Cooling Solutions	Residential	Measure/Technology Focus	Implementing Contractor
Energy Solutions for Multi-Family	Residential	Market Specific/Hard to Reach	Direct Install
Energy Solutions for Manufactured Homes	Residential	Market Specific/Hard to Reach	Direct Install
Residential Benchmarking Program	Residential	Behavior/Education	Implementing Contractor
Residential Direct Load Control	Residential	Demand Response	Implementing Contractor
Energy Efficiency Arkansas	Residential	Other	Statewide Administrator
Commercial Midstream	Commercial & Industrial	Consumer Product Rebate	Retail Outlets
C&I Solutions Program	Commercial & Industrial	Custom	Trade Ally
Small Business	Small Business	Market Specific/Hard to Reach	Trade Ally
City Smart	Commercial & Industrial	Market Specific/Hard to Reach	Trade Ally
Agricultural Energy Solutions	Agriculture	Prescriptive/Standard Offer	Implementing Contractor
Agricultural Irrigation Load Control	Agriculture	Demand Response	Utility Outreach (email/direct mail)
Bring Own T-stat Pilot	Residential	Demand Response	Trade Ally
Empty			
Empty			
Empty			
Empty			
Empty			

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Program Year Data

2017 Portfolio Data

Program Name	Expenses		Energy Savings (kWh)		Demand Savings (kW)		Participants	
	Budget	Actual	Plan	Evaluated	Plan	Evaluated	Plan	Actual
Lighting & Appliances	\$ 4,708,434	\$ 4,521,562	29,927,961	50,040,143	6,533	9,908	2,261,358	291,634
Home Energy Solutions	\$ 11,798,620	\$ 11,736,577	22,638,739	25,757,464	10,440	10,122	7,222	7,733
Efficient Cooling Solutions	\$ 2,608,580	\$ 2,209,519	17,446,000	9,548,026	10,228	2,908	5,999	2,548
Energy Solutions for Multi-Family	\$ 1,087,309	\$ 964,280	3,011,306	6,111,955	1,716	2,526	4,000	1,898
Energy Solutions for Manufactured Homes	\$ 1,066,973	\$ 1,013,729	1,996,069	4,690,095	393	1,083	900	641
Residential Benchmarking Program	\$ 557,798	\$ 468,626	9,118,435	7,901,231	6,718	5,351	208,264	336,309
Residential Direct Load Control	\$ 3,044,555	\$ 2,064,063	0	1,734	35,000	37,612	22,184	23,075
Energy Efficiency Arkansas	\$ 198,507	\$ 197,986	0	0	0	0	0	0
Commercial Midstream	\$ 1,228,253	\$ 1,116,444	11,466,158	12,312,436	1,654	3,452	849	912
C&I Solutions Program	\$ 23,644,196	\$ 21,195,549	109,920,001	98,073,142	17,364	12,174	850	764
Small Business	\$ 4,184,886	\$ 4,269,781	13,247,024	23,005,941	2,841	2,817	1,100	744
City Smart	\$ 3,664,805	\$ 3,638,872	12,806,791	19,940,702	2,598	3,203	85	367
Agricultural Energy Solutions	\$ 1,018,569	\$ 765,606	6,551,697	7,609,051	937	1,040	118	51
Agricultural Irrigation Load Control	\$ 3,092,606	\$ 2,837,698	0	0	31,000	12,216	1,271	1,035
Bring Own T-stat Pilot	\$ 130,676	\$ 68,912	0	0	580	0	750	55
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0

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Program Name	TRC					
	Lifetime Savings (MWh)	Total Cost	Total Benefits	Net Benefits	Ratio	Levelized cost
Lighting & Appliances	718,052	\$ 5,767	\$ 41,147	\$ 35,379	7.1	\$ 0.0122
Home Energy Solutions	421,459	\$ 11,737	\$ 33,081	\$ 21,344	2.8	\$ 0.0444
Efficient Cooling Solutions	88,580	\$ 2,217	\$ 4,346	\$ 2,128	2.0	\$ 0.0333
Energy Solutions for Multi-Family	74,760	\$ 400	\$ 3,930	\$ 3,530	9.8	\$ 0.0077
Energy Solutions for Manufactured Homes	74,732	\$ 393	\$ 3,364	\$ 2,971	8.6	\$ 0.0083
Residential Benchmarking Program	7,901	\$ 324	\$ 282	\$ (42)	0.9	\$ 0.0435
Residential Direct Load Control	2	\$ 1,368	\$ 4,324	\$ 2,957	3.2	\$ 835.9977
Energy Efficiency Arkansas	0	\$ 198	\$ -	\$ (198)	0.0	n/a
Commercial Midstream	184,687	\$ 2,401	\$ 9,045	\$ 6,644	3.8	\$ 0.0201
C&I Solutions Program	1,351,232	\$ 30,898	\$ 54,386	\$ 23,487	1.8	\$ 0.0342
Small Business	338,417	\$ 6,765	\$ 13,010	\$ 6,245	1.9	\$ 0.0306
City Smart	278,562	\$ 7,149	\$ 10,992	\$ 3,843	1.5	\$ 0.0386
Agricultural Energy Solutions	76,872	\$ 577	\$ 2,551	\$ 1,975	4.4	\$ 0.0102
Agricultural Irrigation Load Control	0	\$ 2,688	\$ 3,853	\$ 1,166	1.4	n/a
Bring Own T-stat Pilot	0	\$ 69	\$ -	\$ (69)	0.0	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a

Program Name	Target Sector	Annual Budget & Actual Cost				Annual
		2016		2017		2018
		Budget	Actual	Budget	Actual	Plan
1. Lighting & Appliances	Residential	\$ 5,100,501	\$ 4,723,152	\$ 4,708,434	\$ 4,521,562	31,321,000
2. Home Energy Solutions	Residential	\$ 15,097,877	\$ 14,042,588	\$ 11,798,620	\$ 11,736,577	25,612,000
3. Efficient Cooling Solutions	Residential	\$ 2,620,953	\$ 2,344,395	\$ 2,608,580	\$ 2,209,519	16,141,000
4. Energy Solutions for Multi-Family	Residential	\$ 701,785	\$ 688,946	\$ 1,087,309	\$ 964,280	2,905,000
5. Energy Solutions for Manufactured Homes	Residential	\$ 634,547	\$ 810,080	\$ 1,066,973	\$ 1,013,729	1,671,000
6. Residential Benchmarking Program	Residential	\$ 686,161	\$ 598,198	\$ 557,798	\$ 468,626	6,328,000
7. Residential Direct Load Control	Residential	\$ 4,332,150	\$ 4,052,965	\$ 3,044,555	\$ 2,064,063	0
8. Energy Efficiency Arkansas	Residential	\$ 326,589	\$ 230,642	\$ 198,507	\$ 197,986	0
9. Commercial Midstream	Commercial & Industrial	\$ 1,153,018	\$ 1,033,206	\$ 1,228,253	\$ 1,116,444	13,101,000
10. C&I Solutions Program	Commercial & Industrial	\$ 23,308,895	\$ 19,748,340	\$ 23,644,196	\$ 21,195,549	110,073,000
11. Small Business	Small Business	\$ 3,247,526	\$ 3,293,002	\$ 4,184,886	\$ 4,269,781	11,088,000
12. City Smart	Commercial & Industrial	\$ 4,265,759	\$ 4,215,474	\$ 3,664,805	\$ 3,638,872	12,787,000
13. Agricultural Energy Solutions	Agriculture	\$ 965,016	\$ 887,504	\$ 1,018,569	\$ 765,606	6,542,000
14. Agricultural Irrigation Load Control	Agriculture	\$ 3,522,940	\$ 3,586,750	\$ 3,092,606	\$ 2,837,698	0
15. Bring Own T-stat Pilot	Residential	\$ -	\$ -	\$ 130,676	\$ 68,912	0
16. Empty		\$ -	\$ -	\$ -	\$ -	0
17. Empty		\$ -	\$ -	\$ -	\$ -	0
18. Empty		\$ -	\$ -	\$ -	\$ -	0
19. Empty		\$ -	\$ -	\$ -	\$ -	0
20. Empty		\$ -	\$ -	\$ -	\$ -	0
Regulatory		\$ -	\$ 14,865	\$ -	\$ 72,440	
Total Portfolio - Current Programs		\$ 65,963,717	\$ 60,270,107	\$ 62,034,767	\$ 57,141,646	237,569,000

Program Year	Company Statistics		
	Revenue and Sales		Expense
	Revenue	Sales (kWh)	Budget
2017	\$ 1,739,545,000	20,888,455	#####
2016	\$ 1,733,733,000	20,639,386	#####
2015	\$ 1,820,805,000	21,160,228	#####
2014	\$ 1,642,896,000	21,001,325	#####

Annual Net Energy Savings (kWh)

2016	2017	
Evaluated	Plan	Evaluated
53,871,110	29,927,961	50,040,143
24,842,378	22,638,739	25,757,464
10,724,845	17,446,000	9,548,026
2,794,597	3,011,306	6,111,955
1,620,786	1,996,069	4,690,095
8,142,462	9,118,435	7,901,231
52,172	0	1,734
0	0	0
10,411,844	11,466,158	12,312,436
91,431,787	109,920,001	98,073,142
17,197,779	13,247,024	23,005,941
25,040,969	12,806,791	19,940,702
7,159,184	6,551,697	7,609,051
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Annual Net Demand Savings (kW)

2016		2017	
Plan	Evaluated	Plan	Evaluated
3,600	8,160	6,533	9,908
9,000	8,535	10,440	10,122
8,600	3,348	10,228	2,908
700	865	1,716	2,526
600	192	393	1,083
4,500	5,863	6,718	5,351
27,300	28,099	35,000	37,612
0	0	0	0
2,500	1,886	1,654	3,452
15,100	11,123	17,364	12,174
1,700	2,024	2,841	2,817
2,100	4,410	2,598	3,203
900	965	937	1,040
14,900	17,027	31,000	12,216
0	0	580	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

253,289,913 238,130,182 264,991,920 91,500 92,496 128,003 104,412

EE Portfolio		
Uses	Savings (kWh)	
Actual	Budget	Actual
#####	238,130,182	264,991,920
#####	194,165	253,201
#####	186,555	229,268
#####	197,564	205,507

CERTIFICATE OF SERVICE

I certify that the following persons have been served with a copy of the foregoing
Comments of the South Carolina State Conference of the NAACP, South Carolina
Coastal Conservation League, and Southern Alliance for Clean Energy by electronic mail
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This 15th day of November, 2019.

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